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ORIGINAL ESSAYS.

REFLECTIONS *on* FEVER, *and particularly on the Inflammatory Character of* FEVER, *by* LYMAN SPALDING, M. D.

(Concluded from page 223.)

CURE OF FEVER.

IN our reflections on the cure of fever, we must go back to the very first moments of indisposition; to that chaotic state of the symptoms which existed before the disease had taken on itself any decided character. This period has been called the formative state of fever. We shall, then, divide the cure of fever into three periods:

1. The formative state.
2. The stage of morbidly diminished action.
3. The stage of morbidly increased action.

On the formative State of Fever.

The formative state of fever is, in fact, the commencement of the stage of morbidly diminished action. We, however, choose to consider it separately from that stage; because, the treatment in the two periods should be somewhat different, and, also, for the purpose of im-

pressing the student with the high importance of attacking febrile action on its first appearance, without waiting for a regular development of its character.

In most cases of fever, there is a space of time from the very first approaches of indisposition, till the character of the fever is developed; this is called the formative state of fever. In this period, the symptoms are a perfect chaos, and the most sagacious physician may not be able to decypher what character of fever is to take place. The length of this period is very uncertain; it varies from an hour, or perhaps less, to several days. It is during this state, that the physician has the best chance of curing, or, rather, of preventing the disease.

There are a multitude of diseases and slight indispositions, particularly colds, that are accompanied with febrile action, in which no regular character of fever is ever formed. At the commencement of these complaints, their cure will fairly come under the treatment of the formative state of fever; because, under this head, we mean to treat, not only of the cure of the formative state of the three regular characters of fever, but also of the cure of the formative state of every species of febrile action. By this plan, the physician, when called to a patient labouring under febrile action, will not hesitate to prescribe, although no regular disease has developed itself.

On the Cure of the formative State of Fever.

In our reflections on this subject, we shall include the treatment of the early symptoms of every fever before it developes itself, and of every species of febrile action; yet not without a special reference to the character of the disease which may be expected to follow.

To judge of the character of fever which will probably be formed, we may consider,

1. The character of fever which, at that time, is most prevalent.

2. The character of fever to which the patient has been most liable.

3. The character of fever to which his recent exposures would subject him.

4. The character of fever that the symptoms mostly indicate.

After having decided on the character of the fever which is most likely to be formed in this particular patient, the cure is to be attempted by general remedies; yet not without a special reference, in the administration of each remedy, to the character of fever which you expect will succeed; and also, to that remedy which will most probably prove efficacious in this particular case: therefore, it will not be expected that all the means of cure hereafter named will be used, nor in the exact routine mentioned. We shall place them in the order in which they are generally prescribed by our best physicians.

Perspiration. In most incipient cases of fever, and of febrile action, a gentle perspiration has a powerful effect in restoring health.

When a gentle and agreeable perspiration is produced over the whole body, you have evidence that the exhalent arteries, a very extensive class of vessels, have returned to the performance of their functions; or, in other words, that they are in health. The quantity of fluid discharged may be of some consequence, when there is a fulness of the vessels; but the great advantage to be derived from the perspiration, is the return of the exhalent arteries to the performance of their healthy action; and the effect which such an immense number of vessels, distributed throughout every part of the body, and restored to their natural action, must have in influencing other parts to take a healthy action.

Vomiting. Vomiting is one of the most useful remedies in the formative state of fever. Not so much for the mere discharge of the contents of the stomach, as for the shock* which is given to the whole system.

Purging. Cathartics have a considerable effect in removing the formative state of fever, by exciting many of the functions of the alimentary canal; viz. its mus-

* To use a figurative expression, it is like the blowing up of the magazine of fort Apalachicola, by sailing-master Basset, with the first hot shot which was discharged at the fortress.

cular motion, and the action of the exhalent arteries, and of the mucous and other glands situated on the canal and in its neighbourhood, by which, not only the contents of the canal are discharged, but also large quantities of serum, mucus, bile, &c.

Blood-letting. This should be practised in the formative state of fever, if there is nothing in the condition of the patient, nor in the probably ensuing character of fever, which forbids it. Blood-letting is one of the most powerful means of preventing the formation of fever, especially of the inflammatory character; because, the heart and arteries are here primarily affected, and the abstraction of their contents prevents them from taking on a morbid action.

Ablution. Doctor Currie has written a most valuable treatise on the effects of water in fever. There can be no question that the use of water, in all its forms, is highly advantageous in the formative state of fever. The particular manner in which it is to be applied, in each case, must rest upon the judgment of the physician.

Mercurialization. That affecting the system with mercury has often cured the formative state of fever, the united voices of Rush, Warren, and hundreds of other American physicians, can testify; but, that it has destroyed many, our grave yards demonstrate.

Blistering. For local pains, blisters may be of advantage; but no great dependence can be placed on them for interrupting the formative state of fever.

Sinapisms, although useful, have less effect than blisters.

Wine, alcohol, and other stimulants, are sometimes found useful in peculiar cases.

Opium is occasionally administered with advantage.

Beside the foregoing remedies, there are a great variety of others in use among physicians, but the most important, the most powerful, have been named.

In the treatment of the formative state of fever, great judgment must be used in nicely adapting the cure to the exact state and condition of the patient. It must not be thought that all these remedies are to be used in every case; no, the physician must have in view the character of fever which will probably be formed, the

age, sex, condition, strength, &c. of his patient; and he must nicely graduate his remedies according to all those circumstances. And notwithstanding a powerful onset is advised, the capability of the patient to support this shock must always be had in view, or he may be injured.

The chance of curing, or rather of cutting short the duration of fever in its formative state, or after it has completely developed its character, is as an hundred to one. Hence the necessity of attacking every species of febrile action at its commencement, and with such powerful remedies as are most likely to destroy it, and prevent the formation of a fever.

Many European physicians are of opinion, that they never cut short the course of a fever, by remedies, after it has completely formed its character, and continue for three or four days. Some Americans hold a different opinion. Yet, how few physicians are there who attack the formative state of fever with vigour. Oft times have I seen some placebo administered to amuse the patient, while the fever should develope itself. Yea, I have known physicians refuse to do any thing in the formative state of fever, and thereby lose the best opportunity of curing the disease.

Cure of the Inflammatory Character of Fever.

It is of no small importance to the safety of the patient, that his physician should be able to ascertain, on the first moment of indisposition, that his patient is attacked with the inflammatory character of fever.

To decide this question, the following circumstances may be taken into consideration:

1. The character of fever to which the patient has been liable.
2. Is this attack similar to his former ones?
3. The character of fever which prevails at that time.
4. The season of the year.
5. The age, sex, condition, temperament, habits, exposure, &c. of the patient.

6. The character of fever which is most strongly indicated by the symptoms.

7. Every other concomitant circumstance.

The cure of the inflammatory character of fever naturally resolves itself into two periods: the one, during the formative state of the fever, and through the stage of morbidly diminished action; and the other, from the commencement of the stage of morbidly increased action, to the end of the disease.

We have already treated of the cure of the formative state of fever in general; but, if the remedies have not been successful during this state of the fever; or, if none have been used, then a somewhat different, more definite, and more vigorous course, must be pursued.

Treatment of the inflammatory Character of Fever during its formative state, and through its stage of morbidly diminished action.

We shall presume it to be a pure, unmixed, simple case of the inflammatory character of fever, having no tendency to typhoid action.

The indications to be accomplished in this period of the disease are,

1. To remove the proximate cause of the inflammatory character of fever, viz. the very great diminution of the life of the muscular fibre.

2. To prevent the reaction of the heart.

It may be extremely difficult to decide, on abstract principles, the remedy which, in each particular case, ought to be first used. This must rest wholly on the judgment of the physician. We shall mention the remedies in the order in which they are most generally prescribed by our best physicians.

WARM BATH AND PERSPIRATION. If the physician is called at the first hour of the attack, and the symptoms should not be violent, the patient appearing only to have taken cold, pediluvium, semicupium, or general bathing in warm water, will often afford relief. The object now to be obtained is the removal of the proximate cause, i. e. to restore the very great diminution of the life of the

muscular fibre. The bathing should be accompanied with friction, and motion of the limbs. General bathing, as being more extensive, is more efficacious, than a partial bath. It is the same with friction; every part of the body should be well and repeatedly rubbed while in the bath. Immediately after bathing, perspiration should be promoted by warm teas, sudorifics, &c. If it should be gentle, agreeable, and nothing contraindicates, it may be kept up for six, twelve, or even twenty-four hours.

General bathing and friction are among the most powerful and direct applications to the parts, which have been exposed to the remote cause of the disease, and which are, in part, the seat of the proximate cause, viz. the external muscles. It is not improbable, that warm bathing with friction, followed by a gentle perspiration, is the best means of restoring the diminished life of the muscular system.

Emetics. Perhaps vomiting may be spoken of next after the warm bath and perspiration. The object in giving an emetic is to accomplish our first indication of cure.

The stomach and œsophagus are surrounded by powerful muscular membranes. The shock which is given to these membranes, and to the whole muscular system, when the emetic operates powerfully, is very great. Every fibre in the whole body is agitated, convulsed. It is principally from this effect on muscular structure, that we are to expect benefit from vomiting. Although we shall not pretend to say that the emetic drug produces no good effects by emptying the stomach, when by chance it shall be gorged with noxious matters, and in disposing to perspiration; yet, we affirm, that the salutary effects arise more from the concussion given to the muscular system, thereby breaking up any disposition to morbid action in the muscular fibre, than in discharging a few pints of the contents of the stomach.

Blood-letting. If the patient is of a very plethoric habit, and has been accustomed to lose blood, or if the symptoms strongly indicate blood-letting, it may be practised before either of the above-named remedies; and

more especially, if the physician does not expect to visit the patient again in a few hours. The great objects to be obtained by blood-letting are,

1. To promote our first indication of cure, by unloading the vessels, particularly the minute arterial and venous ramifications, that they may more readily perform their functions, and thereby assist in restoring the diminished life of the muscular fibre.

2. To accomplish our second indication, by preventing the reaction of the heart.

We are now speaking of a period prior to the morbidly increased action of the heart and arteries; therefore, we cannot be guided in the necessity of blood-letting by the preternatural fulness of the pulse; nor in the quantity to be taken, by the buffy appearance of the blood. A full bleeding, from a large orifice, should always be practised, or such a quantity should be taken as the patient, under present circumstances, can, with perfect safety, bear to lose.

Purging. The intention of purging is, to assist in removing the proximate cause, by exciting, to an unusual degree, the natural action of the whole tract of the alimentary canal, and that of all the exhalent arteries which open into it, and of all the glands which have the same outlet. Therefore, we do not prescribe cathartics, because we expect there is a quantity of sordes in the alimentary canal.

Ablution. Spunging, sprinkling, or washing the whole body, or such parts as are preternaturally hot, with cold water, or vinegar and water, has been found of eminent service, by Dr. Currie, and others. The object would seem to be, rather to allay a local symptom, than to answer either of our leading indications.

Cold Water. It is supposed, that fever has often been prevented, or cured, by drinking large quantities of cold water, or cold acidulated drinks. Perhaps both ablution and cold drinks may have a tendency to prevent the violent reaction of the heart.

Blisters, Sinapisms, Cupping, and other remedies, should be used to combat local symptoms.

The apartment of the sick should be kept perfectly clean, cool, well ventilated, and free from noise. No vi-

siter should be admitted into his chamber; every person should be excluded, except his immediate attendants. The patient must avoid conversation; no person should be allowed to speak to him, except the physician and the nurse; and they should hold no further conversation with him, than to understand his disease, and administer to his wants. He should take no food, or next akin to none; a little thin gruel might be allowed, but nothing solid. The exercise of both body and mind must be avoided. He must be abstracted from every thing like business; as also from fixed attention to any subject.

The duration of the formative state of the inflammatory character of fever is so short; the stage of morbidly diminished action so soon over; and the physician so seldom called in season, that an opportunity to prescribe many of the above remedies does not often occur. It will, therefore, be obvious, that the prescriptions must follow each other in pretty rapid succession. When the system has recovered a little from the impression produced by one remedy, another may be administered. They may be repeated, if occasion should require.

Cure of the inflammatory character of fever, from the commencement of the stage of morbidly increased action, to the end of the disease.

If the patient shall not have been seen by his physician before the hot stage commences; or the remedies have not been successful, then a different indication presents itself; which is,

To overcome the reaction of the heart.

In this one point is concentrated the disease. The sheet anchor of our hope is the lancet. A large vein should be opened with a free orifice, and so much blood drawn as will reduce the pulse to the standard of health. It is impossible to name the quantity which will be requisite in every case; from twelve to thirty-six ounces may be taken; and even a larger bleeding may be practised, if the pulse does not yield. The only criterion is, to reduce the pulse to its common standard. If it rise

again in three, six, twelve, or twenty-four hours, a second bleeding should be prescribed.

Twelve ounces of blood, taken from a large orifice in a full stream, has more effect in relieving the minute arterial and venous ramifications from their engorgement, than thrice that quantity, drawn in a small trickling stream; because, when the blood does not flow freely, the large veins and arteries have an opportunity of gradually contracting upon their remaining contents as fast as the blood is abstracted; and the minute arterial and venous ramifications remain gorged with blood. But, if the blood is drawn in a full stream, those vessels have an opportunity, with the larger ones, of contracting and disgorging their contents, thus preventing organic lesions in the vital and other organs.

The ravages which the disease is making in the system, arise more from the engorgement of the minute arterial and venous ramifications, than from the plenitude of the large vessels.

If the pulse rises a third, fourth, fifth, or more times, and, especially, if the last drawn blood is covered with an inflammatory crust, the pulse must be reduced by the lancet; because the only safety for the patient is, in keeping under the violence of reaction. The number of bleedings, and the quantity of blood to be drawn at each time, must depend entirely on the pulse. It must, however, be taken into consideration, that the inflammatory character of fever is seldom cured by one bleeding; and, that a less quantity of blood will probably reduce the pulse, at a third or fourth bleeding, than at the first or second. The physician must also have in view the inflammatory appearances of the last drawn blood, and the quantity of blood which his patient can bear to lose, without injuring his constitution.

The plan of treatment, to overcome the reaction of the heart, is founded on this principle: that the reaction is produced and kept up by an increase in the quantity, or of the stimulating quality of the blood within the heart, acting upon its muscular structure. Reaction alone is the grand overruling symptom in this stage of

the disease; therefore, so much blood must be drawn, as will subdue the reaction, if it can be done with safety.

As soon after the first bleeding as the patient has recovered a little from its immediate effects, say within an hour, there should be given a solution of tartrite of antimony. If the patient have not previously taken an emetic, or not within the last twenty-four hours, it should be given in such quantities as to produce three or four full vomitings; after which, or, in case the patient had recently taken an emetic, the solution of tartrite of antimony should be given in such divided and repeated doses, as to keep up an almost uninterrupted nausea, dispose to perspiration, and produce three or four copious watry stools.

The objects are, to unload the stomach, to give a shock to the body, and so completely to prostrate the strength of the whole muscular system, that the heart shall not have left sufficient muscular force to produce reaction. The discharging of the contents of the stomach, and the concussion given by vomiting, have already been explained. The prostration of the strength of the muscles of the alimentary canal, and, consequently, of the whole muscular system, by the nauseating effects of the tartrite of antimony on the esophagus and stomach; and by its purgative effects on the intestines, is astonishingly great. A Sampson, who could ordinarily overturn temples by his mere muscular strength, cannot, while labouring under the powerfully nauseating effects of the tartrite of antimony, lift his hand to his head. There is no remedy, if we except blood-letting, which has so lasting and powerful effects in prostrating the muscular powers of the heart, and overcoming its reaction, as the preparations of antimony. Nausea should be kept up for twelve or more hours, out of every twenty-four, if nothing contra indicates.

The grand indication which we have in view, is to overcome the reaction of the heart, and prevent its recurrence. The lancet and tartrite of antimony are our shield and helmet. While we are practising these remedies for two or three days, the combatting of local symptoms must not be omitted. Blisters, sinapisms, local

bathing, cold and warm; drinking of ptisans, cold water, &c. may be prescribed.

If the physician should not have been so fortunate, by the end of the second or third day after the first hot fit, as to have overcome the fever, he must be contented to let it run its course, and endeavour to conduct his patient safely through the remaining part of his sickness, with the least possible injury to his constitution. This will be best accomplished by alleviating the symptoms as they appear; always bearing in mind, that most of those symptoms, if not all of them, arise, either directly or indirectly, from the morbidly increased action of the heart.

The inflammatory character of fever will generally terminate critically on the fifth, seventh, ninth, or fourteenth day; and to this object our attention must be directed.

An unfavourable issue must be apprehended, if the attack is very violent, and the symptoms obstinately resist all remedies; and more especially if typhoid symptoms supervene.

The circumstances indicating a favourable crisis, are, a less violent attack, an easy subduction of the symptoms; and, if on or about either of the critical days, a spontaneous perspiration, diarrhœa, hæmorrhage, or copious deposit from the urine takes place, accompanied with a mitigation of the symptoms. These evacuations are not the concocted matter of the fever thrown off, as was once supposed; but the earliest evidence of a change having taken place in the system. If this change is a complete overthrow of the fever, all the symptoms will probably appear mitigated; but if it be the triumph of death, most of them will be increased.

Symptoms are the effects of the disease made manifest through the functions, or morbid actions of the several organs and parts of the body: consequently, every organ, and every part of the body must experience the effect of a change in health, or in disease, before it becomes apparent to the most sagacious physician. These early changes in the action of the heart, brain, tongue, skin, the alimentary canal, the exhalent arteries, and the kidneys, produce a soft equable pulse; agreeable

sensations; a moist tongue, with a change in the fur on the sides; a healthy, pleasant, and agreeable perspiration; a natural and salutary discharge of offensive matters from the alimentary canal; sometimes a flow of blood from the debilitated exhalents of the nose, or other parts; an abundant discharge of urine, affording a copious deposit of lateritious sediment, &c. It is perfectly evident that a change must have taken place in the action of the organ itself, before any alteration could have taken place in its excretions.

During the cure, the patient must avoid every kind of animal food, even animal broths. He must eat nothing but weak gruel, barley or rice-water, sago, arrowroot, &c. Solid food of every kind must be proscribed.

Immediately on a favourable crisis taking place, the patient should be offered the aromatic sulphuric acid, (elixir vitriol,) and water. If in danger of sinking, during the remittence of fever, he may be allowed a small quantity of some delicate cordial; and if absolutely necessary, a small quantity of the infusion, or decoction of Peruvian bark. When the patient has passed the period for the second paroxysm since the crisis, and that without much fever, he may be allowed a more liberal use of the infusion, or decoction of bark, with small quantities of animal broth. The patient's bowels must be opened every other day.

The inflammatory character of fever has generally one paroxysm in each twenty-four hours; that of every other day is, usually, the most violent. These paroxysms recur several times after the crisis is formed, but with diminished violence. The depleting remedies are used to the most advantage, at the approach of the paroxysm, and the invigorating, during the stage of apyrexia.

It must be distinctly understood, that we have been treating of a highly inflammatory character of fever; in which there is not only no prospect, but, in fact, no possibility of its running into typhus.

I am inclined to think that this character of fever occurs more frequently in America than on the Eastern continent.

The treatment which we have recommended is de-

cided, energetic, and adapted for a vigorous constitution. In all cases, however, allowance must be made for the age, sex, condition, &c. of the patient.

It will be readily perceived that we have most faithfully drawn our mode of treatment from the seat, and proximate cause of the fever.

The seat of the inflammatory character of fever we have shown to be in the muscular structure; and the proximate cause, a very great diminution of the life of the muscular fibre.

Our first suit of remedies is applied, as directly as possible, to the muscular structure, with a view of restoring its diminished life. Since the circulating system exercises an overruling power upon the whole of the body, and that power is supported by the muscularity of the heart; it is to this point, that our attention is called in the second place; and, lastly, to subdue local symptoms as they arise.

It is worthy of note, that the mode of cure, drawn as faithfully from the seat and proximate cause, as though the writer had never seen the disease, nor read any other than Thomas's description of it, should correspond so exactly with the treatment which has been found the most successful by every judicious practitioner, from the days of Hippocrates, whatever his theory of the disease might have been. This single circumstance is a powerful reason for believing that the true seat and proximate cause has been discovered. Another reason for the same opinion is, that when the writer commenced this investigation, he had a very different theory of fever, its seat, and proximate cause; but he was irresistibly led to this inference, from the weight of testimony, as he proceeded.

We do not pretend to have discovered, or even introduced any new remedies; but we think we have shown the rationale of the old ones. Have we not explained, in the most satisfactory manner, the reason that the various preparations of antimony have been found so efficacious in fever; and pointed out more definitively the objects to be accomplished in the several periods of the disease? We think that we shall have given to the

practitioner a confidence in his own powers; an object to be obtained in every period of the disease, and the best means by which it may be accomplished.

THEORETICAL OBSERVATIONS *on the use and functions of the* SALIVARY, LACHRYMAL, *and other* GLANDS *in the* HUMAN SYSTEM. *By* HORACE H. HAYDEN, *Esq. Surgeon Dentist, Lecturer on Odontology, in the University of Baltimore.*

(Concluded from p. 246.)

It is said, that the inhabitants of Billedulgerid, (a province in the north of Africa,) are subject, at certain seasons of the year, to an inveterate scurvy in the gums,* which is attributed to their eating dates, the only vegetable they have that is eatable, and which grows in abundance in that country.†

I would ask, why are not the inhabitants of the other different provinces in Africa, or of Barbary, afflicted with this complaint, who likewise live mostly on dates; and also the Arabians, with the lower order of Egyptians and Turks?

It is also said of those people, that they are very subject to inflammation in the eyes, which is attributed to the reflection of the sunbeams from the white hard soil.

I would likewise ask, why are not the inhabitants on the borders of Zaara, and the great desert of Barca, (in Lybia,) and Arabia, or those who are in the habit of travelling across those regions, equally afflicted with these complaints? If, so, in some instances, I should ascribe it to another cause. Why are not the inhabitants of the cold regions of the north afflicted with disease of the eyes, who are subject, not to beholding white, hard

* See Universal Geography.

† From the best information I can obtain, this disease is not the elephantiasis, although said to be by some. I am further inclined to believe them different, as the one is first manifested in the mouth, while the other begins at the feet and legs.

sand, but boundless regions of snow, which operate more severely by straining the eye, than the whitest sand at present known?

Mention is also made by numbers, and particularly by M. Volney, (in his travels in Egypt and Syria,) of the prevalence of diseases of the eyes, and of blindness among the Egyptians, and which is frequent among the Assyrians; and which he attributes to the "corrupted humours" which are afforded by the peculiar nourishment which they take, and to the saline quality of the air, which he considers as contributing to the "first principles of those disorders."

Those humours being "diverted from the ordinary channels by habitual perspiration, they fly to the exterior parts, and fix themselves where they find the least resistance. They therefore naturally attack the head; because, the Egyptians, by shaving it once a week, and covering it with a *prodigiously hot* head-dress, principally attract the perspiration to it."

It appears to me, that M. Volney need not have gone so far in search of the cause of this complaint; or, if he considered onions, which he mentions, as conducing to this complaint, and of which those nations consume great quantities, he would have been careful, from motives of humanity, to caution his countrymen to abstain from the free use of garlic, which is equally calculated to produce ophthalmia.

It is a well-known fact, that all persons who work in the sun, and perspire very freely, complain of a soreness and smarting in the eyes, which is, in general, attributed to the heat of the sun, or weather, and "the sweat running into the eyes."

It is also a well-known fact, that in a profuse or constant perspiration, the salivary secretions are much diminished, and sometimes, almost or quite suspended; the mouth and throat parched up for want of something to moisten them. It may be observed too, that when the salivary secretions are diminished, the lachrymal secretions are likewise; that although the thirst of the mouth and throat may be allayed by drink, yet the eye cannot drink, except indirectly. Hence, the constant secretions of the coats of the eye, receiving some change, or modifica-

cation, by the access of external air is left to irritate the coats of the eye, and thereby produce that unpleasant burning sensation, experienced by those who perspire freely, merely from a deficiency of the lachrymal secretions to correct its operation.

This seems to be strengthened, by the relief experienced by those who, in this situation, wash their eyes in cold or fresh water. It is observed by the same author, that this disease prevails more on the sea coast than elsewhere. Without doubt; for the water which they drink, or use, is brackish, or of a saline quality. To these circumstances may be attributed, I think, most of the inconveniences which they suffer from this complaint. In the first place, the saline quality of the water naturally promotes thirst; of course, a diminution of the salivary secretions. The same is experienced in the eye, although we may not be so sensible of it.

In the next place, this monstrous head-dress, promoting and keeping up a constant perspiration in the head, tends to diminish the salivary and lachrymal secretions, until at length the secretions of the eye and surrounding surfaces becoming more and more acrid, inflammation ensues, which terminates in a distressing ophthalmia, or total blindness.

This opinion receives additional support from further observations of the same author, namely; that while the natives are subject to this disease, strangers are *almost exempt;* for a very good reason. Strangers are not in the habit of wearing the enormous turban, which, no doubt, contributes largely in producing this disease, by promoting an habitual perspiration, particularly about the head. As appears again by the following passage from the same author, "It will appear more probable, that the excessive perspiration of the head is a principal cause, (thereby attracting the humours to the eyes, as is his opinion,") when we reflect that the *ancient Egyptians, who went bare-headed*, are not *mentioned by physicians* as being much afflicted with ophthalmia.

But, to return to the inhabitants of Billedulgerid, it will be recollected, that this large extent of country is barren and mountainous. That during several months, at least, the air is intensely heated: so much so, that for

nearly six months in the year, almost every fountain, or source of water, is exhausted, or dried up.*

It is, doubtless, from a continued privation of this refreshing liquid, to quench their parched throats, that the resources of nature in the system are likewise exhausted; and, as in famine, the acrid secretions begin their operations on the eyes, as well as mouth, producing inflammation in the one, and corroding the internal surface of the other, irritating the membranes of the teeth, they at length become loose, and all drop out. This seems but the commencement of the dreadful scene; for in proportion as the dissolution of the fluids progresses, the secretions become more acrid, and being swallowed and carried into the stomach, without the diluting aid of the saliva, to correct or lessen its acrimony; thereby disordering its functions, and increasing the evils, by producing general disease, which terminates in the most distressing symptoms of certain dissolution of both fluids and solids; commencing at the mouth and eyes, and spreading over the body, rendering the patient "loathsome to himself and all those around him." Here, if I am not incorrect, we see at once displayed, in a striking manner, the use and importance of the salivary juices to dilute and correct the acrid secretions of the mouth, and also of the eyes.

Here, too, we see presented, (when viewed in this light,) a fabric, the internal structure of which discloses a system, in the glandular and absorbent economy, comprising such symmetry, such endless correspondencies and beauty, as beggars the sublime genius and boasted talents of man to imitate, or even scan, in all its various modifications, and shows it worthy, only, of him from whose hands it came, and whose works are not only inimitable, but inscrutable.

Having pointed out what I consider one of the important uses of the salivary and lachrymal glands, and their secretions; having noticed the correspondence between the absorbents and those glands, I beg leave to recapi-

* It is worthy of observation, that although in the different provinces of Barbary, the plague rages with dreadful fury, (at times,) yet the inhabitants of Billedulgerid are almost exempt from it; so that it is scarcely known among them, although a constant intercourse is kept up with the neighbouring provinces. Is this a deficiency of water, or what?

tulate some of the laws of these secretions, which trace the correspondencies into the general system; for they are *not confined* to the mouth and eyes.

If the fluid secretions in different parts of the human body are susceptible of being changed into coagulum, or even pus, on the surface of the different cavities and membranes; if, at any time, they are morbid, become acrid, capable of irritating and inflaming the parts, so as to render the salivary juices necessary to correct the acrimony, or dilute, attenuate, or dissolve the coagulum, so as to render it easy of absorption, in any one instance, it certainly must be necessary throughout the whole system.

That this is a rational conclusion, I think will be made to appear, from a variety of corresponding circumstances, not only interesting in themselves, but worthy of the most deliberate investigation.

That the thoracic and abdominal viscera are subject to morbid excitement, particularly the latter, from acrid secretions, I am inclined to believe from a variety of circumstances, not, however, grounded on *my own experience.*

Mr. Bell says, (vol. 4. p. 29.) "I have seen, in the high state of inflammation of this membrane, (the peritoneum,) pus formed upon the surface without ulceration, and, therefore, probably, from the same exhaling surface, and coagulable lymph lying in flakes upon it. The increase of the serous discharge forms the common ascites; but whenever the *natural* secretion, or *exudation* from the peritoneum *is altered, adhesions are apt to form.*" Does inflammation produce this morbid secretion and adhesion? Or does an acrid secretion, or natural secretion ALTERED, produce an inflammation in the coats of the peritoneum, the result of which is an adhesion? Does the fluid, injected in the operation for hydrocele, produce an inflammation, and consequent adhesion, or union of the tunica vaginalis, and tunica albuginea?

Or is there a pre-existing inflammation, which only requires the healing qualities of a little *wine* to heal it over, thereby producing a union of those membranes? I

confess I feel a corresponding conviction relative to both, but shall suspend my opinion.

If there is an increase of the halitus, or *aqua pericardii* in disease,* "if it concretes into cellis, and cellular substance," or is at times somewhat viscid,† and "immensely increased;" Is it probable that the secretions, at any time, become acrid, and capable of exciting inflammation of the pericardium? To this I do not feel competent to answer. But, admitting those secretions in the abdominal cavity, are there no provisions made to correct its quality, or counteract its effects in a certain degree, and under particular circumstances?

Mr. Haller makes mention of a peculiar kind of glands, called "conglobate,"‡ which are of an oval form, or shape, following the course of the blood-vessels, throughout almost every part of the system—of which he observes, "of what service these glands are to the lymphatics, is not yet well known."

Are those the glands that perform the office of pouring out a thin fluid, like the salivary juices, for the purpose of diluting and attenuating the viscid secretions, in the different cavities of the system, rendering it easy of absorption, and also for correcting its acrimony? That there are organs allotted to this purpose, must appear evident on mature reflection; that they are destined *of necessity*, must appear equally obvious; that they are even admitted, though in an indirect manner, by different authors, is equally as certain.

The writings of Haller seem to carry this idea in several instances, though he has not declared it in any one that I am apprized of; as, for instance, (in his Physiology, p. 25. art. 56.) after observing, that the use of those glands was not known, he remarks that, "it is, however, rendered probable by late experiments, that in these glands, *some kind of fluid* is *prepared*, which is *mixed* with the *lymph*."

His opinion of the use of the blood of the spleen, in diluting the sluggish blood of the liver, (whether correct or not§) seems to imply that the fluids, at times, re-

* See Bell's Anatomy, vol. 2. p. 52. 54.
† See Haller's Physiology, p. 35.
‡ See Haller's Physiology, p. 24, 25.
§ See Physiology, p. 333.

quire the operation of some agent to facilitate their circulation, and prevent obstructions.

Mr. Bell likewise gives us much reason to conclude, that such a provision is made (if I comprehend him) in the system; and that this is their use, we are left to infer from his own words.

In volume 4. page 57. of Bell's Anatomy, when speaking of the third cellular coat of the stomach he says, "it is in this coat, that anatomists have found small glandular bodies lodged, *especially* towards the extremities, or orifices of the stomach." Again, at page 58. when describing the internal coat of the stomach, which he says, "has not been so fully examined, and is not so *perfectly understood* as the analogous appearance of the intestines," he observes, that "glands are also described, as opening upon the inner surface of the stomach: and those who have not been able to see these glands, which are seated in the third cellular coat, yet believe in their existence from analogy; while others observe foramina towards the upper and lower orifices of the stomach, which they *suppose* to be the opening of ducts or glands. These, however, which I believe to be merely cryptæ, or follicles, are themselves the secreting surface, and not the ducts of the proper round glandular bodies; *at the same time it must be admitted,* that this surface shows *a glandular* and *tuberculated* structure.

From the following, I think we may reasonably infer what is the case of these glands; since their existence seems to be admitted.

Mr. Bell observes, (volume 4. page 61.) "It is almost superfluous to observe, that the gastric juice has no power of acting on the coats of the stomach during life; whether this be owing to the property in the living fibre, or resistance to the action of the fluid, *or that there is a secretion bedewing* the *surface,* which PREVENTS the action, it is not easy to say."

If for a moment we admit, that those organs, at the two orifices of the stomach operate as salivary glands, pouring out a thin aqueous fluid, to correct, or attenuate the secretions of the stomach, can it be owing to a suspension of their functions or discharges, that the natural secretions of the stomach become acrid, and cause

those distressing pains experienced in a state of starvation or famine, and a variety of other cases?

From all the above circumstances, and many more that might have been adduced, I think it must be uniformly admitted, that there is not only a necessity, but really an established system of (salivary) glands throughout the whole system; and for the necessary, and express purpose of diluting viscid secretions, and correcting their acrimony; thereby preventing inflammation in all the different cavities and cells in the human body.

This opinion not only receives additional support, but is, at the same time, beautifully illustrated in the circumstance that follows.

I have observed, that it is during the action of the muscles particularly, that the salivary discharges are promoted; and that during a state of perfect rest, there is but little or no discharge from those glands, either in the mouth or eyes. Hence such an unpleasant taste in the morning. Hence, also, the eyes are often glued up during the night. It is frequently by contemplating the works and operations of nature, that the most important latent truths are discovered and brought to light, which would otherwise have remained in obscurity. It is also certain, that, in many instances, analogy is a much surer guide to truth, than the most refined systems in nature.

Hence, I am inclined to resort to the following, as a strong collateral testimony, or support of the opinion, or subject under consideration.

Whoever is disposed to observe, will find that there is a not a human being, or four-footed animal (and also many other species of living creatures) existing in a state of health, but what is in the habit of extending its limbs and body, or stretching, as it is called, after having remained any length of time at rest, and particularly so after indulging any length of time in sleep.

This is so common, that it may be observed in every animal, from the sucking mouse to the sagacious elephant; and also in every human being.

It is often observed, that this is an indication of thriving, and that it is necessary in order to stretch the muscles that have become *relaxed* by a suspension of action.

The one I admit is correct; but I should consider it more properly an indication of health; for when there is a healthy excitement, there is always an increased secretion; consequently, stimulating to this peculiar action, in the man or animal.

But, is it probable, that it is necessary to stretch the muscular fibre, that is already relaxed from a state of inaction? or can it be probable, that it is necessary to throw the muscular fibre into a state of tension, to qualify it for an immediate state of inaction again, by lying down at his ease, as is often the case with man? Or for animals, to stand for hours in one position, almost without moving? Is it not singular, that a man, or animal, that has laboured hard through a sultry day, in which a copious perspiration has been constantly kept up, his muscles and limbs fatigued and relaxed, should feel no disposition to stretch himself in the morning when he awakes, or extend his limbs; but on the contrary, feels himself as much fatigued almost, as when he laid him down to rest, though in perfect health?

If it is necessary to stretch the limbs, or throw the muscles into a state of tension, in order to re-establish their tone, after a few hours relaxation, is it not equally singular, that little or no disposition to stretch is manifested in a sick animal, that has remained in that state for days? or in a man who has laboured under a violent fever for the same length of time?

If it is to answer that purpose only, is it not singular indeed, that man, who enjoys an uninterrupted repose through the night, and indulges himself in stretching in the morning when he awakes, should feel an increasing, but involuntary propensity to stretch, the more he lounges in idleness through the day, which is invariably the case when in health?

Rather let it be considered an inherent principle endowed by nature, as not only necessary, but *indispensable* to health, both in man and animals, and to preserve us from disease.

It is in a state of rest, that the functions of all those glands, (that are denominated salivary glands,) are suspended; while, at the same time, the exhalants are performing the act of secretion, by the action of the arteries.

Hence the necessity, when he awakes from sleep, of this general spasmodic, or muscular action, by which the glandular system is compressed, and their contents are discharged to dilute and correct the secretions, thereby preventing morbid excitement, which might otherwise ensue, by being too long retained in a viscid or otherwise acrimonious state.

Remarks *on the* Quarantine System *of the State of Pennsylvania, and on Quarantines generally. By* Thomas D. Mitchell, M. D. *late Lazaretto Physician of the Port of Philadelphia.**

This is a subject which, according to the views of some men, has been long since completely exhausted. And, indeed, if we were to judge of the fertility for investigation peculiar to any one topic, from the simple consideration of the mass of matter that it has elicited from a thousand pens in less than two centuries, we might soon arrive at the conclusion, that the subject of quarantine regulations could not, at this day, afford matter for discussion. But when we reflect how great the prejudice still continues to be, against the true character of this important subject, we are ready to think, that much remains to be done in order to scatter the clouds of superstition, and exhibit the naked truth in the full blaze of meridian day. To effect this desirable end, a variety of means may, and must be resorted to. If it be not enough to exhibit in glowing colours, rational and intelligible truth, it behoves us to attempt the accomplishment of our object, by a faithful and striking exposure of glaring absurdities and infatuating errors.

The quarantine system of the state of Pennsylvania

* The reader will perceive that the present essay is relative to the quarantine regulations of a sister state, with the irregularities of which the Editors have no intention to meddle, otherwise than as a proof of the inefficiency of any quarantine system that is not founded on the simple principle of purifying unclean vessels, capable of engendering epidemic diseases, which, combined with the heat and moisture of the summer season, may become pestilential. See Medical Repository, vol. 7. p. 215—218. Vol. 9. p. 158, 159. 224—228. 376. Vol. 10. p. 394—400. Vol. 13. p. 49—57, and in various other places.—Ed.

is predicated on the supposition, that the disease commonly called the yellow fever, is not only contagious, but also imported from distant places; and conformably to this spirit, boards of health have been appointed from time to time, to guard the city and liberties of Philadelphia from the ravages of pestilence. The actual condition of the city itself has been regarded as a thing of minor consequence; so that while dead animals have been lying in our streets and alleys for many days, emitting their unwelcome effluvia to the annoyed inhabitants, vessels have been detained at the Lazaretto, their cargoes discharged, and other enormities practised, for no other crime, than because they came from a port that was, perhaps, about as sickly, and no more so, than our own. So negligent are the proper authorities, in relation to the cleanliness of our streets and alleys, that it is not possible to walk three squares in the city, without being annoyed by the most abominable odours.

And yet, with all these facts before us, we are told, again and again, that yellow fever cannot be generated in our towns, but that it is always brought from abroad.

Sure I am, that we need not thank the advocates of foreign origin, that these *nuisances* do not *always* generate malignant disease; for our exemption from so great an evil from this source, we are indebted to a higher power, even to that overruling Providence, by whose guardianship we have been so long protected from the ravages of the "pestilence that walketh at noon-day."

But the errors of the contagionists and foreign originists, are not confined to the shameful neglect of cleanliness in our streets, lanes, and alleys. If they were thus confined, such neglect might be justified by the very sentiments which these men hold. But so far is this from being the fact, that I shall make it abundantly evident, that even in the execution of their own favourite system, they have practised the grossest absurdities, and the most unpardonable inconsistencies.

A very few years ago, the yellow fever, (as it is called,) prevailed to an alarming degree at the Lazaretto, about twelve miles below Philadelphia. The sources of this disease were undoubtedly brought there by vessels that came from ports in the West Indies. Many persons

fell victims to its fury. The disease, according to its uniform character, under similar circumstances, did not spread, but in a few weeks ceased to exist. This fact, however, is no justification of the conduct pursued by the board of health at that time, as will be presently detailed; and is noticed, simply, to confirm what has been asserted repeatedly by the advocates of domestic origin. In that melancholy season, the board of health appointed committees, who were in the habit of visiting the Lazaretto once, and sometimes twice a week. These men, who, from the very nature and design of the law under which they acted, must be presumed to have been contagionists, were in the practice of going from the city early in the afternoon, for the purpose of visiting the Lazaretto, of entering the hospital, examining the patients, sometimes going on board the sickly vessels lying at the quarantine station, and in the evening of the same day returning to the city, to mingle with its inhabitants. That men who were ever talking of contagion and importation, should be regardless of the nastiness and filth accumulating in the public streets, is indeed disgusting, and is exactly what might be expected; but that such men should be guilty of acts, which according to the spirit of their own sentiments, should necessarily tend to the propagation of pestilence, is an outrage upon decency, and a vile slander upon common sense. This is not all: one of the committees appointed by the board of health during the season already adverted to, went a step further in the path of error and inconsistency, by the commission of an act, the history of which will scarcely be accredited even by the advocates of domestic origin. A gentleman who had been supercargo of a foul and sickly ship at the Lazaretto, died of the prevailing disease after a very short illness, in the course of which, all the symptoms, characteristic of malignant bilious fever were apparent. On the day of his burial, (the same of his death) this committee proceeded to the Lazaretto, no doubt, expressly with a view to the examination of the deceased. They caused his grave to be opened, and after having removed the lid of the coffin, one of the committee opened the abdomen, inspected its contents

and took out the stomach, which he carried to the city, in the evening of the same day, for the purpose of convincing a physician in Philadelphia, that the deceased had died of yellow fever. The other member of the committee, previous to their departure from the Lazaretto, was asked the question, whether or no he thought the disease then prevalent in the hospital was the yellow fever? to which he replied in the affirmative. Both the members of this committee were medical men. Nay, further; these very men were continued in office as members of the board of health several years after this occurrence, although the whole transaction had been detailed to the executive, who appointed them. Let us, for a moment, place such a case in the hands of the contagionists, to fill their mouths with arguments to prove the doctrines of importation and contagion. Suppose, for the sake of argument, that the yellow fever should prevail in any one of our cities, the origin of which could not be easily traced by the contagionists. Suppose, however, that after diligent inquiry, it should appear, that previous to the arrival of some vessel or other at the Lazaretto, a passenger or seamen had died of the yellow fever, and that some person who afterwards went to the adjacent city, (no matter whether sick or well) had examined the body of the deceased passenger or seaman, had thence removed the stomach and brought it to the city; suppose all this, and you will infer, that the contagionists would immediately cease to make further inquiry. This single fact would be considered by them universally, as an ample cause of the raging epidemic. I speak from a positive knowledge of the manner in which such men reason and act; and I am confident, that if the case stated, had happened the very next summer after the occurrence of the odious transaction at the Philadelphia Lazaretto, the same men who were guilty of that transaction, would have drawn the same conclusion as that in the case supposed. What then are we to think of these men, and what also of their idle notions? Like the lawyer, who first takes his cause and afterwards adapts cases and arguments to support it, so they resolve first that the yellow fever is contagious and imported.

and then, determined not to shrink from the cause they espoused, they endeavour to bend and twist every fact and circumstance, so as to render their case in some measure plausible.

Such was the course of conduct practised by the board of health in Pennsylvania, until the year 1812, when in consequence of a very proper representation made to the legislature, a supplement was added to the existing health law, which prevented any member of the board from going within the bounds of the Lazaretto during the term of quarantine. Who would think that this measure did not meet the decided approbation of every contagionist? This, however, was the fact, for no sooner had the legislature enacted the supplement, than a hue and cry was raised by the board of health, which has not ceased to the present day. They exclaimed, that their powers, already too contracted, were now shamefully limited, and that as a consequence of being deprived of the privilege of visiting the Lazaretto, the city would certainly be afflicted with yellow fever. Their exclamations, however, were in vain, as the city has remained free from the reign of pestilence, although the supplement of the law still continues in force.

This being the state of things, one would suppose, that no act would afterwards have been perpetrated to make the inconsistency of these men and their system further manifest. For they were unable to know any thing of the internal affairs of the Lazaretto, except by information from some of its stationary officers, which information they were obliged to confide in, or to act at random, without any guide, save their confused notions of importation and contagion. Notwithstanding this dilemma, they continued to act at that time, and have acted up to the close of the last year, in a manner at once opposed to their avowed sentiments, and at perfect variance with good sense and reason.

The laws established for the regulations of quarantines, although in all cases the offspring of contagionists and the advocates of importation, are in themselves a practical refutation of the doctrines which these men entertain. Agreeably to these laws, officers are station-

ed at Lazarettos, and vested with power to visit and examine the vessels that may arrive there. What is the fact with regard to these officers? do they select the vessels on board of which they choose to go for the *purpose* of examination? by no means. A number of vessels arrive at the same moment on the quarantine station, and wait the visit of the officers. The first of these vessels is discovered, on examination, to be highly charged with pestilential effluvia, to have lost a number of her crew with yellow fever, and at the very moment of examination, to have on board several persons ill of this malignant disease. The officers remain on board a sufficient length of time to make all the necessary inquiries, and then proceed directly from this "living sepulchre," to the next vessel, which they discover immediately to be in a healthy condition, having had a passage of but a few days from Boston, or some other place equally healthy. Here the officers remain long enough to go through the usual inquiries, and to hold a little general conversation, which is usual in such case. They then proceed to visit as many more vessels as may be in waiting, passing from those that are sickly to others that are healthy, until the business is completed. This is an exact picture of the case as it is, for I have witnessed it myself. But I ask, how is it reconcileable with the views of the contagionists? They believe and have asserted repeatedly, that a man may carry the seeds of yellow fever in his person, from place to place, so as to propagate that disease, without being necessarily injured himself by it. This is their creed; and yet in a law of their own manufacture, designed solely to prevent the propagation of malignant disease, they have expressly declared, as far as words can do it, that an officer at a quarantine station, may go into the very heart of pestilence and death, not only once or twice, but daily and hourly, without any fear of conveying disease to healthy persons, with whom he must necessarily have intercourse, and that continually. Will it be said, that I interpret unfairly? I challenge refutation, and I repeat, that it is with the entire and full consent of the contagionists, that the practice pre-

scribed in visiting vessels, was originally adopted, and that practice is precisely of the nature above described.

There is no possible mode by which this apparent absurdity can be reconciled, than by making the farcical supposition that the Lazaretto officers have a specific exemption from all the fancied horrors of contagion, and the sad realities of malignant disease. To place this gross absurdity in a more conspicuous light, I will suppose a case, similar to many which have occurred in times past. Suppose that previous to their arrival at the Lazaretto station, a sickly vessel from Havanna and a healthy vessel from Boston or elsewhere, should have intercourse by means of their boats; that this intercourse was of no longer duration, than it occurs when such vessels are visited by the Lazaretto officers. After this intercourse, the vessels proceed to the quarantine ground, and are examined, the vessel from the Havanna is detained, and the other from Boston is permitted to proceed into port. She is hauled into the wharf, and there discharges her cargo. About this time, yellow fever is discovered in the vicinity of this vessel, and search is made by the *contagionists* and *importers* to trace its origin. In a little while they arrive at the knowledge of the fact, that this Boston vessel had some intercourse with a vessel from Havanna, the men detained at quarantine. This is enough, the mystery is solved, conjecture is at an end, and the Boston vessel becomes the object of their execration. They would not listen for a moment to any other conjecture, after having made a discovery of this dreadful intercourse, although they are fully aware of the fact, (and know it to be a constant usage) that the Lazaretto officers do visit sickly and healthy vessels alternately, without communicating disease to the latter. I call upon the contagionists to attempt the justification of their conduct, if they can, and until this is done satisfactorily, I shall maintain, that their own projects (quarantine laws) for the prevention of yellow fever, are directly and totally hostile to their favourite and avowed sentiments relative to this disease.

We are now told, and the information comes in a shape by no means questionable, that the yellow fever

prevails at Charleston. The papers of that place, or some of them, boldly ascribe the disease, and most justly, to local causes, such as the putrescency of stagnant water. I have asked some of the *contagionists* and *importers*, whence came this yellew fever? they deny roundly that it is generated in Charleston, because, say they, it is not, in this country, a disease of domestic origin. Whence comes it then? from Havanna is the reply, and truly the yellow fever has been extremely fatal in that town. But I ask, why has not the yellow fever been brought to Philadelphia or New York; since five times as many vessels have arrived from Havanna at those ports, as have entered at Charleston? or, as Lazarettoes are the safe guards of our cities, I ask, why has not yellow fever been discovered at the Lazarettoes of Philadelphia and New York? I know, as respects the quarantine station near Philadelphia, that there has not been a single case of yellow fever, brought there from Havanna, during the present season. If this disease could be brought from Havanna to Charleston, why not to Philadelphia, where so many vessels have arrived during the present warm season from Havanna? The thing speaks for itself, and all the sophistry that has ever been employed by the *contagionists* and *importers*, must be unavailing, to suppress the fact, that yellow fever has originated in the city of Charleston.

An outcry has been raised to prevent any intercourse between Philadelphia and Charleston, in order to guard against the importation of yellow fever from the latter place. Three persons are said to have died there of this disease, and we are told that in Havanna nearly four hundred were destroyed by it in one month, at a time when vessels were taking in cargoes for Philadelphia, and else where. These vessels have since arrived, and although coming from the midst of pestilence, have brought us no yellow fever, not even to our Lazaretto. And yet three deaths from yellow fever in Charleston, are sufficient to rouse the dread of our contagionists, so as to prevent all intercourse with that place, while at our very noses are the seeds of death, ready at every moment to burst forth with all the fury of

pestilence. How absurd, how completely fraught with inconsistency and palpable contradiction, are the declarations and opinions of these men!

The quarantine system of Pennsylvania, and all others that are like it, will ever be mere dead letters, until the purity and cleanliness of our city, are regarded as objects of primary importance. By looking abroad and neglecting to examine at home, we act the foolish part, and incur the same fatal consequences with the sick man, who while he thought of fifty ways by which he might have avoided his malady, forgot or neglected to apply a single remedy for his restoration to health. For my part, from all I have seen and heard and read, I am not able to believe that yellow fever can be imported from any one part to another, so as to become epidemic in the latter, provided its perfect cleanliness and purity have been primarily and chiefly consulted, Nay, further, I am of opinion, that if a thousand sickly vessels were placed before a perfectly clean and wholesome city, during a pleasant season, there would be less risk of an epidemic, than if the same city were filthy, offensive and unwholesome during a hot and dry season, with not a vessel in sight of its wharves. This, to be sure, is an hypothesis, which cannot easily be proven by experiment; but it is one, nevertheless, which has a mighty mass of fact as its basis, and is perfectly consonant with the true history of the origin of any epidemic yellow fever that has ravaged our country.

If quarantine regulations have ever had the effect of securing any city from pestilential disease, they have done so by a negative, not by a positive agency. That agency has operated, not by preventing the introduction of actual disease into our cities, but by keeping at a distance the remote causes of disease. I would not therefore altogether abandon quarantine regulations, but if these are not conjoined with rigor and determinate regulations for the purity and cleanliness of every part of a city, I should consider the former as perfectly nugatory. Both, in combination, would operate thus in the prevention of pestilential disease; the faithful execution of rules for the cleanliness of a city, would effect the removal thence, of all noxious matters capable of

generating disease; while the regulations of quarantine, by keeping the offensive matter of a filthy vessel at a proper distance, would co-operate, by a negative agency, in promoting the desirable object of cleanliness. Vessels should never be detained at a quarantine station for a longer space of time than is requisite to effect a thorough cleansing. There is nothing inherent in a ship, that should of itself generate disease; for once made perfectly clean, she is exactly on a footing with any other habitation for man, in point of salubrity. And it may be confidently asserted, that no serious inconvenience ever did, or can arise, from permitting a once sickly and foul vessel to proceed to the wharves of a city, after having been properly purified at a distant Lazaretto. I declare honestly, and without any hesitation, that I have never known a case, in which a single instance of sickness occurred on board a vessel at the Lazaretto, after she had undergone the cleansing process to a proper extent. Nor do I believe it possible in the nature of things, that such a case can occur under similar circumstances. We are indeed told of disease raging on board of vessels subsequently to their having been fumigated, but it is nothing to the purpose whatever, for, in my opinion, that process does not remove, but, on the contrary, increases the unhealthy state of a vessel.

In short, whatever may be the nature of quarantine regulations, whether lax or rigid, let our grand aim be the cleanliness of our cities. This will be the best, the surest bulwark round about us; a barrier more insurmountable than all the rigours, the forfeitures and penalties of the best regulated Lazarettoes. Thus protected, our citizens might smile at the reveries of the contagionists, for they would then be harmless.

August, 1817.

Desultory Remarks *on the Cause and Nature of the* Black Colour *in the* Human Species ; *occasioned by the Case of a White Woman suddenly turned Black. By* Felix Pascalis, m. d. *Corresponding Member of the Society and Faculty of Medicine of Paris, &c.*

This extraordinary event is not unprecedented. Among several creditable authorities testifying to the same kind of transformation, Van Swieten has more particularly detailed the treatment and cure of a woman who had remained black one year. This fact seems to have reached an equal chance to that of an opposite change from black to white in the human species.

After relating from the Journal of *Medicine de Paris*, a very recent transformation of the kind, we will propose some interesting remarks thereon.

Mary Gaillard, an old woman at Piest, department d'Eure et Loire, had reached the age of 70 years when she became the subject of this accident. She had never been affected with any remarkable disease. She was now in the most abject poverty, and derived all her support from begging, and from the charities of her acquaintances ; having no home, she was permitted to shelter herself in a gangway adjacent to some private building. She had a daughter with two small children, who sometimes were left to her keeping while she was employed in some days work. These having afterwards contracted some disease from filth and what not, the mother ascertained that their complaint was of a syphilitic nature, and accused her aged parent of being the only impure source from which the children could have received it ; this odious imputation threw Mary Gaillard into deep affliction, which gradually rose to a violent degree of grief she never had experienced. On the other hand, the daughter falling into a fit of despair and madness, took the two children in her arms, and with them threw herself out of the window ; thereby they were all crushed to death. The day she heard of this horrid and tragical destruction of all her children, the old woman was shocked to such a degree of misery and sorrow, that it operated on her

whole frame, and the ensuing morning, she found herself all black from head to foot. Mary Gaillard lingered eighteen months in this situation, for which she received no further help, until alarming symptoms of her approaching dissolution, obtained her admission into the infirmary of La Salpetriere, October 28th, 1817.—Her body was there carefully examined, and offered no vestige of disease or of organic imperfection whatever. Her black colour was not however of the same intensity on the face, on the palms of her hands, the soles of her feet, and in the groins, where it was somewhat lighter, but it was intensely black on the breast and mammæ, on the abdomen, and all over her limbs.

Some white ephilides on her legs from the former natural colour had remained unaltered, and formed a curious contrast with the rest of the skin.

Her lower extremities were much enlarged, almost to deformity; being hard, they could not be indented by pressure of the fingers. Moreover, she was exceedingly lousy. Her present symptoms, those of a violent peripneumonia, could not be relieved, and continued three days with restlessness and great anxiety, exciting compassion until she expired, without experiencing a change of her black colour; this was observed to become paler half an hour before the autopsic examination. A blistering plaster which had been applied had raised a large vesication; the serous fluid of which, the cuticle, and the cellular tissue, were all blackish, as it happens on the skin of negroes.

The knife was used with great care on this interesting subject. Incisions on the skin in various directions, plainly offered the lineal stratum under the cuticle, and on the rete mucosum which constituted the black color. No material alteration was found in any cavity, except in the thorax, and what had caused her last sickness and death, to wit, a considerable effusion of bilious and purulent matter. The texture of the pleura was highly inflamed, and the substance of the lungs had become of a dense and fleshy texture.

That the secretion of *black matter* exists in the white race, can be proved by numerous facts in the healthy as well as in the morbid condition of the same. The

first secretion that is formed in the human body during its fœtal existence, is nothing else but a black matter called *meconium.* Black matter lines the whole surface of the retina, and constitutes the black or brown colour of the hair—from the last of which it can be visibly pressed out by a gentle friction, with a piece of white linen. It constantly exists also in the *glandulæ renales* and in the *bronchiales.* It may be so abundantly accumulated in the stomach and intestines, as to require to be carried off by strong cathartics, being one of the intestinal secretions in it, more offensive than bile and mucus, when it takes place. Partial effusions and spots of black matter are frequently observed on the legs of white men; the same appear on the hands of aged people, who are not aware of any distinct and particular cause of its formation.

Black matter is characteristic of several diseases, and there is not a bowel complaint but is connected with its superabundant secretion, while we are unable to account for it. Medical practitioners have sometimes supposed that certain medicines, especially calomel, could effect a change of colour in the alvine secretions, and of bile. But in the yellow fever this secretion becomes fatal, and is the most universal and dreaded symptom, for it is produced by it in such a quantity as to astonish, and to bespeak the dissolution of the whole blood.

There is also a kind of pulmonary disease or consumption, forming tubercles in the substance of the lungs, that are black and carbonaceous. Mr. Bayle of Paris has described it from numerous cadaveric observations, and gives to it the distinctive name of *melanose.* (vid. Med. Repos. 7. Vol. i. page 50—52.) In fine, the *atrabilis* of the ancients and the *black* jaundice, of many medical writers, with several other disorders which it would be useless to enumerate, sufficiently prove the natural or morbid formation of black matter in our white species, although it seldom discolours our skin.

Let us now inquire into the origin of that substance, which we have proved to be naturally formed in the human system, when necessary in its healthy state, as it is profusely and morbidly secreted in an opposite

condition. That it immediately proceeds from the blood, we must infer from the various colours that blood alone can impart to the skin. The florid, the purple, the blue, the yellow, and the green, according to that morbid state in which its component parts are more or less abundant or deficient to constitute perfect health. If blood does not take oxygen enough in the lungs, it is no more florid, and it imparts a purple or bluish color: if the liver refuses its bile, it deposits it in the cellular tissue of the whole body, &c.; but a strong proof that the black colouring matter of the skin, immediately proceeds from the blood, is the offspring itself of the negro race, which is white during the fœtal existence, and, which rapidly turns black as soon as it enjoys its own apparatus of respiration, and a more perfect circulation.

It would however appear, that *cæteris paribus* the black matter which is so seldom or accidentally effused upon the skin of the white race, is more abundantly formed in the African race, by the great quantity that is permanently secreted to cover the skin, exhausted from and incessantly renewed in it; which circumstance could not be accounted for according to the laws of respiration, and of animal life, which are uniform throughout the human kind: but we must be aware that the carbon in the blood may either form black matter more or less in one species, and a *carbonic acid gas* in the other, and that this may be continually elicited from the system through the lungs, and at each succeeding column of atmospheric air which is received by inspiration, displacing by expiration that which has left its oxygen, and returning united with the carbonic acid gas. A singular inference must be drawn from this statement, which is, that owing to the great employment of the black matter to clothe the whole surface of the African, no carbonic gas or very little of it remains to be elicited from his pulmonary organs, and that his breath must always be purer or less offensive than that of the white man, whose respiratory organs are the principal outlets of the carbon of the blood; there would be consequently much less dangerous effects to apprehend from impure air, in rooms and places crowd-

ed with negroes, than in those that are crowded with whites, although in a state of perspiration, the black race emit always a most unpleasant sour and smoky-like odour, which results from the black matter of the skin.

We seldom investigate any of the results of natural laws in the animated creation, but we meet with the most admirable provisions for the protection of life, and that which in a burning climate, organizes the body of man in a peculiar manner to secrete the black matter on the skin, is precisely the law which secures his existence under the most scorching rays of the sun; for the carbon of the blood could not by its elimination from the system in the shape of carbonic acid gas, keep pace with its more rapid formation, where it is always abundantly comminuted by the caloric of the atmosphere, nor could the rarified columns of air emitted from the lungs carry enough of the carbonic acid gas, which must then remain and be accumulated in the blood to the detriment of life. Better to illustrate this assertion, let us remark that by experiments accurately made by Messrs. Thompson, Allen, and Pepys, no less than 40,000 cubic inches of carbonic acid gas are emitted by expiration in 24 hours, which have produced about 3-4ths pound avoirdupois of solid carbon, this being the enormous proportion of that element, which in that given time is allotted to man; it may be further observed, that if each cubic inch of carbonic acid gas was the product of one expiration, it would be found that 24 hours could not give more than one half of that quantity. Two cubic inches therefore being the proportion obtained in cold European climates, it is certain that one half only of that gaseous secretion could be performed through respiration under the torrid zone; hence the necessity for the carbon of the blood being deposited on the skin of the negro race. This is done by the exhalent vessels of the capillary arterial system, which secrete so much of the unoxigenated carbon as is contained in the arterial blood, into the cellular laminæ investing the skin, while the remaining fluid enters the veins; this black matter being dissolved in a sebacic oil, affords another protection to the hu-

man body which it invests to absorb the light outwardly, and is the best conductor of internal heat, which it more readily keeps in equilibrium with external objects. We may hope, that by the preceding remarks, we have established the following propositions:

1stly. That the formation of black matter in the human species is a natural secretion from the blood, more or less necessary for certain purposes.

2dly. That its greater proportion in the African race than in the white, is the result or balance of so much of the carbon of our blood, which in the latter is resolved into carbonic acid gas by the organs of respiration.

3dly. That the quantity of carbon in the human blood, affording either black matter or carbonic acid gas, is nearly equal in either white or African race.

4thly, and lastly; That by violent causes, or a morbid alteration of organization, the black matter may disappear from the skin of an African, and form carbonic acid gas by respiration; or vice versa, the carbon of the blood in a white person may be wholly deposited on the skin, as in the case of the unfortunate *Mary Gaillard*, and others of the same nature, whose lungs have been by some cause prevented from secreting the carbon of the venous blood.

September, 1813.

REVIEW.

Results *of an Investigation respecting* **Epidemical** *and* **Pestilential Diseases**, *including Researches in the Levant concerning the* **Plague**. By **Charles Maclean, m. d.** *Lecturer on the Diseases of Hot Climates, to the Honourable the East India Company.* In two volumes. Volume II. 8vo. pp. 524. Lond. 1817.

We have already raised (page 151 of this volume) the expectations of our readers on account of this concluding book. We have analysed the former, which contained an abundant mass of arguments in favor of the domestic origin of pestilential diseases, as an assorting and valuable appendage to our professed opinion on this question, which, from time to time, has been reproduced in our pages, as all important in medicine

The following propositions were laid down in the language of the author, as the ultimate object of his researches :

1stly. That the preventive and curative means of the plague prove that it cannot be attributed to contagion.

2dly. That a contagious power among those that are capable of acting on the human body, is found the only one that cannot possibly produce or aggravate a pestilential disease.

And, 3dly. That his doctrine was to be the result of his practice in a pest-house, and from many experiments on his own person.

However partial we must be supposed to the question, which long ago we have advocated with respect to the yellow fever, we regret not to be fully satisfied, nor enabled to proclaim, that this gordian knot of the Levantine plague has at last been cut by Charles Maclean ; nor that he has obtained evidences enough of his

desideratum, to the full intent and meaning of his second and third propositions.

Numerous were the difficulties and dangers, it is true, which the author did encounter in his researches, chiefly in the Greek hospital of the Seven towers, during the short residence in it, of two weeks, when recovering from the plague, he was by those difficulties obliged to renounce to the continuation of a more satisfactory course of experimental observations. On the other hand, as the true knowledge of the nature and treatment of the plague, is to be derived from correct physiological principles, and a well ascertained pathology of the disease, we apprehend that many theoretical and practical points of his subject, in which we necessarily dissent from him, would lead to contrary results. Thence our present disposition to find in the second volume of the researches enough of exceptionable matter.

Our present task is not precisely that of controversy: it will rather be a faithful exposition of all that in our opinion, is useful and interesting in this volume. We will only glance at the rest, and leave our readers to judge for themselves.

The researches at Malta, the residence of the author, in Constantinople, and in a Greek hospital, with his return to Europe, are three principal subjects, filling up half the volume. The Narrative is in general, much interspersed with all the incidental interest of a book on travel, or a journey by sea and land into a foreign country; also a variety of scenes and events that are well told, and frequently ornamented with quotations from the poets. The whole is composed with ease and candour, but rather too prolix for the reading of *medical inquirers*.

As a first important fact, we find that 32 queries concerning the nature, propagation, and cure of the plague, were proposed by Doctor Maclean to the college of physicians at Malta, and were officially answered by the president or proto-medico of the same body. However well calculated these queries might have been to establish certain circumstances and results of the prevalence of the plague in every populous city, it is to be regretted, that they aimed at points and matter which could not fail producing responses conformable

to the existing opinions in the country, however erroneous they might have been. Doctor M. himself remarks, that the answers were deceptive; and we add further, that they were composed of that fallacious phraseology or formulary, which has existed many ages in the European boards of health and Lazarettoes; taking always for granted certain principles that are not understood on one side and remain doubtful on the other: these are moreover contradictory and uncertain.

The following summary of the answers of the college of Malta, will prove that philosophical consistency was not to be expected from its authority.

"Symptoms of the plague are *innumerable!* yet buboes, coutaneous spots, gangrene and carbuncles are *its* only *characteristics.*" Here the disease is not correctly defined, or it remains a *non-descript.* "The plague usually prevails in the largest and most populous cities of the Levant—but it originates from Egypt." It is communicated by contact or through air, clothes, and all kind of goods—yet there is no medium defined as more infectious than another, but can be approached with impunity.

"During prevalence the intensity of the epidemic varies—it is sometimes observed in the beginning, in the middle, or when it is nearer to its extinction.

"The poison of the plague is most virulent—yet it may remain a great length of time latent in the system.

"The eastern and southern winds are promoters of the plague—yet it prevailed at Malta in 1813, under the influence of the northern breezes.

"The lower order of the people are more liable to the plague—it respects no nation whatever.

"Many believe that the plague can occur but once—yet medical men have seen it twice in the same subject."

This is the best, of all that could be obtained from the college of Malta, in answer to the queries of Doctor Charles Maclean.

Was the science of medicine to be established on such uncertainties and contradictions, it might as

well be stamped with the attribute of a conjectural art.

In fact, we conceive that in investigating the nature of a pestilence, its causes, and especially its contagious power, &c. as many points as were held doubtful, should have been kept in view by way of argument, the better to elicit proofs and evidences. (if required) of their fallacy, or of their want of positive demonstration.

If the plague is from a contagious poison, for instance, it is then an animal poison, which must have a peculiar and congenial vehicle, or mode of existence and transmission. Again, this should not be tested by inoculation in a place where plague actually prevails, but it might be transported, and like the small-pox or the vaccine it could prove its nature, by its effects, in any part of the world.

At the appearance of a pestilential disease, its source or channel of importation should never be mysterious or concealed. Its sudden extinction also after immense ravages, should have solicited some explanation. Boards of health and quarantine institutions in the Mediterranean ports, uniformly admit a defined distance or area to the radius of an invisible contagion; what is it? and how did it come to pass to be known and ascertained?

The elucidation of these and many more questions, it is to be regretted were omitted, and never inquired from the faculty of Malta, perhaps the only learned body within the reach of the Levantine plague.

The second subject in this part, relates to the residence of the Doctor in the hospital near the seven towers, from the 15th Aug. to the 31st, when he was just recovering from the plague. This disease is always much connected with delirium, according to authorities derived from this book, the attention therefore of the Doctor to a great many duties, in the execution of the trust left to him by the authority of the Ottoman Porte, and to his mode of treatment of 14 patients, suggests that his own case could not have been very severe, as he was already convalescent when he left the hospital the 15th day after his confinement in it.

During this short period nine patients, we are told,

died with the plague; three were discharged cured, and two were left convalescent, beside himself. Before we relate his theory of the nature of the disease, and his mode of treatment, in order the better to express our share of praise and applause to the courage and philantropic zeal with which Doctor Maclean extended his researches so far, we refer the reader to a more honorable testimony, the letter of Sir Robert Liston, (his B. M.'s ambassador at Constantinople) to Lord Castlereagh (vid p. 312 in a note.)

The third and most interesting document is the Latin letter of Doctor Küttel of Pest in Hungary, addressed to the English physician while he thought him yet engaged in the pursuit of his experiments. It elegantly and most civily expresses, that the use of mercury might be depended upon to excite a gentle fever, as an effectual preventive against the plague. This recommendation was derived from personal experience, when during the preceding year, he had been professionally engaged in the treatment of that epidemic which had unfortunately reached the confines of his country. Dr. Küttel premises the possible existence in every individual, of the contagious disease, before it is put in operation, and this can be protracted for a period of three weeks, during which the present remedy, internally or externally applied, creates a favourable excitement, increases evacuation, and effectually preserves from the plague without any inconvenience or confinement. As a proof of his success, the author adds; "the admirable preservation of a great many who were enabled to attend their relatives or their friends labouring with the plague, and to administer to them, day and night, every possible service, without ever receiving the disease, while under the influence of the prophylactic." As for the disease itself, Dr. K. declines giving any advice, having never seen two similar cases out of ten.

With respect to this candid and instructive communication, Dr. M. principally insists on the grounds of his claims, to the discovery of the use of mercury as a prophylactic from the year 1788 and 1796, &c.

No interference on our part shall ever invalidate such

claim, nor could we with justice decide on pretensions of many more European candidates to the premium, as by looking on this side of the world, we would find a multitude of similar and more ancient claims, as will appear by a document hereafter subjoined.

In the succeeding pages, instructive arguments are made on the results obtained in pest-hospitals by former inquirers, by Douglas Whyte, by Eusebio Valli, and by a more modern philanthropist, Van Rosenfelt. It is a fact that every one of them has perished in search of medical knowledge in pestilential climates.

Of the two first, our readers have seen several accounts in our preceding pages, but the history of the last was yet unknown to us. Drs. D. Whyte and E. Valli, differed much in the object of their investigation by inoculation or other means of contact. The first only doubted of the existence of a contagious poison in the plague; and the other, who did not question it at all, wished to ascertain how far the symptoms of the plague might be lessened, controuled or cured by the means of inoculation, or by the presence of some other animal poison, as the case has been with the small-pox. Such was his proposed plan, when he embarked for America in search of yellow fever; and when we had offered to him more than sufficient evidence, that no experiment ever could trace the disease to an atom of contagion, he exclaimed, "that we had omitted to test the matter of perspiration, in which he knew the poison resided and could have been found!" Consistent to this theory, as soon as he had reached Havanna, he wanted nothing better than the foul clothing in which a patient had died with the yellow fever. Let us be permitted, without adding a single word of censure, to exclaim with the poet,

"——— Rectiùs occupat
Nomen beati qui deorum
Muneribus sapienter uti."

(*Hor.*)

Van Rosenfelt adopted a different and quite novel course of experimental investigation, Premising active contagion in the plague, he thought himself possessed

of *a secret* or of an antidote, by the power of which he could repel the poison of the plague, or finally cure it, after having contracted it. In July, therefore, he entered the pest-house of the Lazaretto of Pera, in which he remained, and during 30 days submitted himself to every possible means of contact with the effluvia, or matter of pestilential buboes, sores, and pustules of twenty different subjects. Wishing, moreover, to establish the sole agency of his own remedy, he challenged a scrupulous examination of his body before he exposed any part thereof, to absorption or inoculation of the supposed virus, lest he might be suspected of using any ordinary or approved prevention.

The physician of the Lazaretto, Dr. Burghard was charged to inspect those proceedings. Van Rosenfelt remained unhurt and triumphent during one month with and by the power of his *secret!* which was at last buried with him in the grave, after a short but violent seizure of the plague! He could not make his will, and had time only to recommend his family to the beneficence of his sovereign, the Emperor of Austria.

Dr. M. is eloquent enough in the display of all inconsistencies of the above and other experiments on the plague, especially when the observers place themselves under those atmospheric agencies, which combined with other local causes, must engender the disease, also when they employ for the test of inoculation an *animal putrid matter*, which of itself necessarily acts as a deleterious or poisonous element. And who does not know (we ask) that at a certain period of the putrefaction of a dead body, (in any country or season,) its effluvium or contact with it, can cause and has produced a more rapid series of fatal symptoms than plague itself?

But we beg leave to go a step further than Dr. M. in this and in any other kind of pestilence.

We would not allow any experiment on contagion to be *authoritative*, which is performed in a country where the plague and yellow-fever are epidemically prevailing, not even with the rules and cautions which Dr. Maclean has taken the trouble to lay down. These

never will do, nor can they alter the influence of external causes on the human body.

The supreme law of nature should have long ago explained itself to boards of health and Lazaretto institutions, which seem to have existed only for the torment of mankind. These laws of nature they have perverted, and rendered altogether deceptive or mysterious, confused, and inaccessible to intelligent inquiry.

However predominating a pestilential influence may be in certain seasons and countries, there is no plague there, but for those who are predisposed and rendered susceptible of it. These victims it will assail with or without contact, in spite of seclusion or quarantine grounds. The walls indeed of these cannot be carried up above the atmospheric orbit; although the Turks, (as it is well known) by retreating on the roofs of their houses, can save themselves. A pestilential blast or current of air will have its raging period of existence; it may disappear for a while, but be renewed again with a new and more intense malignity. Hence that famous axiom predicated upon greater wisdom than that of all quarantine statutes, "*Hæc tria tabificam tollunt adverbia pestem; mox, longé, tarde, cedé, recede, redi.*" But let that terrible external agency be changed and rendered milder, than that which smothers thousands and buries whole caravans in the desert; let the pestilential blast be gone! public health is immediately restored in those fine countries, which heretofore have been the cradle of the Greek and other celebrated nations, which have invited the Romans to conquest, and which all Christian Europe never could take from hardy *Turks and Arabs*, there, plague is no more! although thousands of human beings, articles of wearing apparel, goods, clothes, houses, and the air itself, must remain infected. Plague is no more, it has disappeared, perhaps for a great many years to come! How could such a mass of contagion be extinguished in the period of a month, nay of a day? is this a query to which no answer can be expected; could not the faculty of Malta have resolved it?

With these materials for arguments, we assert that experimenting on the contagious poison of the plague,

in countries where it usually prevails, must either be inconclusive or absurd. A theatre of pestilence leaves to the observer but the power of assigning the best remedies for it, and of investigating its pathological diagnosis.

All that has been offered on this last point by Dr. M. is that the Levantine plague is formed by a *want of excitation* in the organs of the human system, and that this defect operating in the blood, extends to all its functions, thereby creating a multitude of symptoms, the mutability and delusive formation of which has justly given to plague the attribute of a protean and mutifarious malady. Here we must remark, that this doctrine or definition is not novel in America. We can refer the reader to the exposition of the same in the *Medical Repository*, frequently quoted, whenever the subject has been renewed. Plague has been represented as an impaired state of vitality in relation to the yellow-fever, and to pestilential epidemics.

The development of this doctrine and application to the pathological effects of plague we will now relate, as explained by Dr. M. noticing only in italics whatever expressions or ideas we do not approve of in a physiological sense.

"According to the *structure* of the organs affected, the treatment must admit considerable variation. Thus, besides the brain, the stomach, and the nerves, the want of excitation strikes the glands, the membranes, and the skin. In this *form of the disease*, various remedies applied to many organs, would be impractible; but they are not all necessary. By overcoming *the main body of the affection* we will assure the life and recovery of the patient. Thus it will be sufficient to remove the morbid state of *those parts* of the body which are more indispensable to life, such as the brain and the nerves."

The preferable exciting power of Dr. M. and which he has frequently been accustomed to employ in diseases of the circulating system, is mercury; in those of the brain, and nerves, *it is opium*. Both must be employed simultaneously in the combinations of both affections.

In the ordinary cases of pestilential atony, Dr. M. would prescribe calomel vi. gr. opii. ii. gr. every two hours, until the affection was overcome. This change is effected, he thinks, in about 48 honrs, provided the treatment has been commenced on the two first days of the attack. Having experienced in the Greek hospital, bad management from the officers in attendance, considerable neglect, delays and omissions during night, of prescribed remedies, he justly infers from those causes, a great difference of life and death.

The above proportion of the principal remedy, is a datum for any relative increase of doses in cases of much aggravated intensity of symptoms. In these, Dr. M. has had recourse to 7 1-2 and 12 grains of calomel, with 2 1-2, 3, and 4 grs. of opium. Therefore, in diminished degrees of pestilence, below the mean state, the agents are to be reduced.

He prefers the internal use of calomel, to the external employment of ointment; but should the former be rejected by the stomach, then recourse must be had to the latter. Other exciting powers or remedies may be selected, in order to decrease as soon as possible the calomel and opium after 48 hours; such as *ambulating* blisters, and enemata.

With this mode of treatment, Dr. M. is confident that the disease will be removed as often as the action of remedies can be brought above its level, unless extensive organic lesions have already taken place. The next task will then be to prevent new diseases, arising from the prostration or sudden cessation of the remedy; such as salivation, hæmorrhage, and ulcerations of the mouth.

The views and practical cautions of the author, on the use of collateral or auxiliary remedies, to wit, digitalis, hemlock, camphor, &c., are obviously correct. He informs us, that he has often employed for himself, ahot pediluvium of 2 ounces of the nitric acid, and 4 gallons of water; this outward application originates from the Asiatic British practice, and may be very appropriate in hot climates. With the author, we think however, that when efficacious means are within our reach, it would be idle to trust to uncertain remedies.

That the mode of treatment thus explained would be successful, we have not the least doubt, provided the Doctor would allow us to make use of depletion and of anti-phlogistic means, when necessary, with the same liberty that he takes to administer various articles of the Materia Medica, as corrective or auxiliary remedies. This necessity may arise from the character of the epidemic which may prevail as a *sthenic* disease, or from the peculiar constitution of the patient, and finally from the violence of the excitement, which in many instances must result from mercury, the chief remedy to be depended upon. But here we come to the most unpleasant part of our analysis, and which no sober, nor experienced practitioner can countenance. It is the preposterous doctrine on blood letting, which the Dr. rejects *in toto* in this, and in other complaints, in the most unqualified manner, as an uncertain and dangerous remedy. The following is the declaration we allude to.

"To conclude, I repeat, with the increased confidence derived from upwards of twenty years additional experience, (*experiment, observation*, and *inference, not* implicit conformity with an unquestioned routine,) that blood-letting must always, and in every degree, be injurious, and ought therefore never to be performed. "Whatever has been useful in one case, must be useful in every similar case of disease; but blood-letting has not *invariably* been found useful in any *one* disease. We may therefore, I think, fairly conclude, that it has never been useful in any one *case* of disease. If it be said that this is reasoning, and that experience, let me be permitted to ask, whether just reasoning and real experience can ever differ? It is impossible. Whatever is true in theory, must be right in practice. To inculcate the contrary opinion is the grand shield of empiricism. Circumstances, delivered as facts, from the presumed experience of individuals, ought never to weigh against principles, which are deduced from numerous and undoubted facts, and which can be put to the test of experiment by all mankind." *Maclean's Researches.* p. 453.

Scepticism and eccentricity itself, did rarely offer to medical science as generally defined and understood

among civilised nations, a more formal denial of common sense, if, from the days of Hippocrates himself, to whom the author refers the introduction of remedial bleeding, medical schools of so many ages and denominations, have thus cherished and retained an erroneous doctrine on such an important subject.

Had the writer before us, opposed the practice of blood-letting in the treatment of the Levantine plague, from conviction of its characteristic asthenia, or want of excitement of the organs, his undoubted authority had been a valuable addition to the history of an epidemic, which through the range of time, state of heavens, and of atmospheric circumstances, we are assured has often ushered in with various or quite opposite characters, witness the plague of Athens, as described by Thucydides, that of London, of Marseilles, and witness, the yellow-fever of Philadelphia, in 1793, another sort of pestilence, which in more northern climates, has frequently been observed to participate in a great degree of the inflammatory character. All the authorities and facts being duly weighed and admitted, we would have reprobated the practice of blood-letting in the Levantine plague, as zealously as Dr. Maclean, how highly soever as Botallus, (whom we have quoted, page 263 of this volume) had exalted it, as the most salutary remedy; but, with the extraordinary ground, which the British writer has assumed, he has unfortunately lost, even his claim to decide what are the preferable or best means of curing the plague, because, in relation to it, he concludes from his general opinion and datum, *that bleeding was always bad and exceptionable.*

Afterwards, writing on the question in general, *atque ex professo*, he has derived his argument from particular and negative positions, every one of which is controvertible and dubious. In the case, therefore, of a *minor* question, he has decided before the *major* was granted or refuted;and in the last, he has attempted only to obtain a fictitious authority from divers theories or facts, which he has freely granted or rejected, without invalidating any of the general principles, on which the practice of blood-letting has stood firm since the first conception of medical science. What mode or rule of reasoning is this?

than which none could be more vicious, not only in Aristotelic philosophy, but in ordinary discussions. The attempt, therefore, of Dr. M. to reject remedial blood-letting from medical practice, is *in toto* inadmissable from sound logic. It comes also with a presumption, exactly similar to that of gratuitously opposing or reviling any of the political, moral, and agricultural sciences, by which human societies are formed and taught to provide for their preservation and welfare, without offering any substitute, or a better mode of obtaining their happiness. Had we the least project of a regular controversy with Dr. Maclean on his very extraordinary position, we would ask him, why did he not at first, endeavour to establish the dangerous, the pernicious or fatal effects of drawing blood from the human body, without which this practice would at least retain the attribute of chance or of probable utility? Has he discovered any new law in physiology, circulation and vitality? Has he described some unavoidable deterioration of the human constitution, in case of an accidental hæmorrhage? Is there any material error in the doctrines of physiologists respecting inflammation, internal effusions, rupture of blood vessels, or respecting the putrid tendency of stagnated blood? Will he undertake to prove that the veinous fluid diffuses vitality and is necessary as much as the arterial, or at last, has he found out a substitute to blood letting, that could better abstract an excessive excitement endangering life by gangrene, by distension and rupture of blood-vessels? No, no; no such arguments have been premised, nor could be offered. The much suprised reader will then inquire, upon what ground and with reasoning, the sweeping declaration of Doctor Maclean against blood-letting, could be supported? From respect to the author, whom the least and the last we would publicly oppose, we will here enumerate all his motives, and what he calls *injurious consequences* or *hypotheses*, which have been the grounds of the practice and continuance of blood-letting, with our short remarks.

I. Blood-letting has been supported, because it has been practised in imitation of supposed efforts of nature.	A physiologist does not intend to *imitate* but to *assist* the efforts of nature.
II. In consequence of hypothetical doctrines respecting inflammation.	However various may be the hypotheses respecting *inflammation*, it matters not, its existence suffices to call for a remedy.
III. On account of supposed plethora.	In cases of constitutional plethora, blood-letting is resorted to from urgency of the case, or else it should be *restricted* instead of being *encouraged*.
IV. On the idea of a vitiated state of the blood.	A few of the *humorists* admit yet a *vitiated* blood by peccant matter, acrimony, &c. Blood is either thin or thick, poor or rich, oxygenated, or an irrevocably lifeless fluid.
V. Under the presumption that it relieves pain.	No authority can reject a remedy against pain, except it be deleterious or injurious.
VI. On account of supposed stagnation or determination of blood to particular parts.	This has been and continues to be a most abundant source of indication for blood-letting. It must be rational, or else an auto-da-fe must be made of all books and treatises on surgery.
VII. Practised to prevent disease.	*Ignoramus!* except it be to insure the success of a surgical operation.

Having added the above remarks to show the false positions and wrong constructions of the author, on this subject, we decline further controversy, hoping that from our defence of fundamental points of medical doctrines, no disparagement may be conceived to be intended against the persevering labours and industry, with which Dr. Maclean has in other respects contributed to rid medical science from error and ignorance.

ANATOMY *of the* HEART, CRANIUM, *and* BRAIN: *adapted to the purposes of Medical and Surgical Practitioners. To which are added, in notes, observations on the Laws of Life and Sensation.* By ALEXANDER RAMSAY, M. D. *Lecturer on Anatomy and Phisiology, in Edinburgh. With a series of* 15 *plates and* 32 *figures.* pp. 66. Edinburgh. 1813.

THIS is an imposing title, and it embraces important materials for the history of animal and organic life in man. Of the heart, however, we might bave expected to read something more than what the author has exhibited; of its *muscularity*, which as been demonstratively treated of by Robt. Cowper, M. D. and its *nervous organization*, so admirably detected and depicted by Scarpa. This organ in the hands of the present author, has only been accessary to his principal subject, as one in the human economy which is immediately connected with the power and functions of the brain. Of this, we must akcnowledge he has given a perfect anatomical description, and is the best we know in the English language. However inferior to the researches and details of Haller, to the various and splendid exemplifications of Vicq d'Azyir, Ramsay's work, we will prove, is sufficient in his more concise and portable form; he is also more ingenious in his mode of instructing as if with the help of ocular inspection and of manual dissection.

With reverence to his religious motives and disposition, we must preface our remarks on his performance, with our homage of adoration to the omnipotence and infinite wisdom of God, who hath thus endowed man with organs fitted up as it were to a contact or agency of an immaterial soul, and thereby rendered them the seat of life, of sensation, and of perception!

That the human cranium is by its form and composition of eight bones, an indispensable subject of study, for a correct delineation of the brain, Dr. Ramsay has wisely foreseen and provided for the knowledge of the circulating system which aliments the cerebrum, cere-

bellum, &c., and the power which it exercises and distributes all over the body by the ramification of the nerves. These results are evidently deduced from the present work, not only for the instruction of the student, but of any thinking man, who will open his eyes upon the admirable structure of the human brain. The plan of the work is contrived by no less that 30 figures upon 15 coloured plates, which are so well adjusted one to another from the first removal of the calvaria and opening of the dura matter, that through corresponding apertures, the underlaying parts can be shewn *in situ*. The whole thereby realises dissection by the scalpel, and assists it by the proper size of the coloured prints. Dr. R. has noticed many interesting circumstances in the progress of his dissections of the brain, which cannot fail of becoming useful to the practitioner of physic and surgery; such as the anomalies, or difference of vessels and sinuses in different subjects, the relative situation of internal parts as corresponding to external, the comparative aiterations he has minutely observed and described from a case of idiotism, and also his founded opinions of the respective functions of the cerebrum and cerebellum, in relation to will, and to thought.

The reader may soon perceive what kind of superiority over his preceding laborers Dr. R. is possessed of in the subject of his experimental dissections.

Having witnessed them ourselves, we can better estimate both his talents and enthusiasm in the pursuit of anatomical knowledge; with it, he no doubt will always command a superior claim to correct exposition and authoritative delineation. Whether he can equally and justly be entitled to that eminence in physiology on the subject of *life* and *sensation*, we will leave to our readers to judge. We dare not to determine ourselves, because Dr. Ramsay has not classed any of his remarks on the above subjects. And however correct and instructive they might be, we are unable to outline their bearing to inferences from any theory or system; one, ideed, would have been necessary to reconcile the immaterial principle which he has laid down as the primordial cause of *life* and *sensation*; with the agencies of certain external incentives, which

he has represented as destructive of mental perceptions! we will however proceed, and notice some of his observations.

In note i. page 7. On diseased muscular fibres, Dr. R. thus remarks: "*Disease* and *intemperance* induce a state of system, when the legitimate operations are suspended. On such occasions the phantoms of clouds and darkness often occur in sun-shine. Light and flashes of fire are apparent, when we are enveloped in the real realm of night. Various colours float above the eye of the valetudinary, nauseous taste, ungrateful odours, confused sounds, and teazing feeling, distract and mislead the victim of morbid action, which have no existence but in the convulsions of imbecile muscular matter which often fails, on the other hand, to be actuated by natural appropriate stimuli." "The notion of morbid strength in the paroxysms of febrile and other maladies, seems very erroneous; as these actions are really the convulsive and involuntary struggles of unhinged nature, which never take place in health or strength,"

On local and indigenous causes of difference of shape in human forms, we approve of the following—page 14. Note i. "In Europe the cranium assumes more or less an oviform shape. By an attention to different countries and the influence of climate, civilization, government, laws, morals, and religion, we observe the various organs of man, liable not only to varieties of shape, but maladies peculiar to each organ, deducible from these simple principles. When, therefore, anatomical structure, and those leading causes which influence living matter, are more minutely investigated, it is probable that the solitary and delusive reasons hitherto too frequently assigned for the variety in human figure, genius, and maladies shall cease, and their true causes respecting disease being recognised, their effect may be palliated or eradicated with more certainty."

Again, in page 37. Note i. We think the following to be an interesting observation. "The veins of the brain have no valves in their cavities. This unsupported state of the columns of venous blood, seems aggravated by the anterior direction of their contents meeting resistance from the blood in the longitudinal sinus, which

observes a retrograde course towards the lateral sinuses. Numerous cases have come under my observation, where great quantities of blood had escaped into the substance of the hemispheres, as well as into the ventricles, from a rupture of the extremities of the veins, while their trunks continued unaffected. All the organs over which the mind has not immediate control (or vital organs) except the heart, are void of valves in their veins; on the contrary, every organ has valves where the mind operates. All the vital organs possess only one species of muscles, which contract on the applications of their contents, such are not liable to paralysis, but organs over which the mind has control have opponent muscles, and are obnoxious to paralysis. The reasons for these contrivances are evident: the contents extend the muscles of the vital organs, as the heart, arteries, veins, bowels, urinary bladder, &c. But the members of the body require opponent muscles. The absence of the valves in the vital organs must have wise intentions—it seemingly predisposes to disease, to sleep, &c.

Functions of the *cerebrum* and *cerebellum*, page 49. Note i. "The cerebrum is that organ where ultimate material operations take place, and which are taken off by the soul. The cerebrum seems passive in this respect, as well as its nerves. We seem to trace the various phenomena, named ideas, connected with sensation, as secondary consequences of arterial action, so far as sensation is connected with reflection. The cerebellum seems principally appropriated to animal purposes; and while this organ is exaggerated in the brute, the cerebrum is proportionably small. Brutes possess large external organs, as the eye, &c. a small cerebrum and a large cerebellum. Man, on the contrary, has a large cerebrum, small external organs, and a proportionally small cerebellum. The explanation of mental and corporeal phenomena, where the brain and nerves are concerned, seem still connected with great difficulty. We often detect great heat and pain in a paralytic member: we discover a power of motion occasionally without any appearance of sensation, &c."

We find also much originality in the subsequent remarks about the power and functions of nerves, page

56. "The olfactory nerves are very large in some brutes; and the bones of the graminivori and carnivori, which receive these membranes and nerves, are not only so extended, but likewise diversified, in their shape, as to suit them for their different offices. In the graminivori they form extensive scrolls. In the carnivori they are infinitely folded. Their funnel shape seems to admit a large quantity of effluvia at the external extremity, which becomes concentrated in its course towards the brain; mucus continually lubricates the membrane, which predisposes the vessels to be accurately affected by effluvia. Does a chymical property in this fluid occasion its more immediately uniting with substances? We perceive how inert a dry nostril is. This same observation applies to the saliva." From the above extracts our readers will perceive, that as a physiologist, Dr. R. possesses a valuable stock of observations and data, which we regret that he has neither connected nor arranged systematically. A poet, a novelist, a romancer—Lord Byron himself may write and please many generations, without much sense and doctrine; but the scientific writer must have an object, some system and method, without which his best thoughts and opinions are like light floating bodies in the air, which obey at last but the power of gravity, down to the ground.

Moreover, such a desultory writer is more frequently exposed to error or hazardous opinions, which it is too difficult for him timely to perceive, to avoid, and to defend, as a theorist or as a philosopher. Thence much good is lost; discoveries are mingled with paradoxes, and at last discarded. Thus a great name, the candidate of fame, remains as an empty sound; while on his spoils many will afterwards thrive and emerge from obscurity. As an instance of the danger of losing by a flippant mode of writing, the merit of a whole life employed in scientific labour, let us make another quotation from Dr. R——'s work, page 52. note 2. "Man, from the state of his ideas, depending on his peculiar organic structure, is liable to the most deleterious affections from excitement of mind, which operate as the most powerful stimulus on the corporeal system.

To be convinced of this, we have only to advert to the sudden convulsion which any passion occasions in the human frame. In proportion as affluence and freedom become the lot of man, we discover derangements of mind extending themselves. Mania is by no means so frequent in arbitrary governments, where the mind is cramped, as in free states, where it is unhampered. Maladies of an acute, chronic, and even of a mortal type, affecting the organs of sense, rarely induce discomposure of the brain. This notion may, in many cases, be extended to even the vital organs, which, though highly vascular, have small nerves, no voluntary action, and comparatively little muscular matter. On the contrary, the functions of the brain suffer great derangement, where disease or injuries of the trunk or limbs takes place, where large masses of voluntary irritable muscles are affected, numerous vessels and membranes are concerned, and their action is communicated through the medium of the medulla spinalis."

We calmly remark on the above, that something like proof is certainly required in moral or natural philosophy when a new doctrinal point is offered, or else it remains a paradox. Who did ever before think that affluent circumstances in life, and the enjoyment of political freedom, were operating causes of derangement of mind? or, that an opposite state of poverty and slavery is the best means for man to preserve the enjoyment of his reason and intellectual faculties? Was there any shade of truth in this broad decision, we might say to the writer, who is well acquainted with the country whence he came, and that which he has chosen for his abode, that in no part of the world are there more mad-houses than in the British empire, where poverty, distresses of every kind, and arbitrary power have at different times taken place without much protecting mankind against the effects of mania, more than in any other part of the world; while, in North America, ten millions of inhabitants are enjoying affluence, freedom and equal laws, who can hardly count three or four institutions of the kind.

There is as little verisimilitude in the assertion of a proportionate derangement of the brain, resulting from inju-

ry on masses of voluntary muscles, vessels and nerves; or else to surgical art we must very often impute numerous victims of mental derangement, which is not certainly the case. The primordial or direct causes of the abolition of the mind are as inscrutable as the laws by which vitality creates and supports all organic functions, and those of our mental perceptions. That these laws are often arrested or confused by disease, is all that we can say—disease which is sometimes indefinite, and sometimes ostensibly formed. The calamities which can afflict mankind, poverty, slavery, vice, unruly passions, and ignorance, are inevitably sources of disease, which divine and human laws teach us to dread, while they incessantly promise to us health, happiness and wisdom, in the enjoyment of moral and earthly comforts.

We nevertheless take leave with respect from the author of this excellent anatomical work, the merit and practical utility of which we have endeavoured to describe, as equally recommendable to professional men, and to the lovers of natural sciences.

A Circular Letter, *from* Dr. Benjamin Waterhouse, *to the* Surgeons *of the different posts in the second Military Department of the United States' Army, (under his command) viz. New Hampshire, Massachusetts, Rhode-Island and Connecticut.* Pp. 24. 12mo. Cambridge, Mass. September, 1817.

Dysentery, the particular subject treated of in the Circular before us, had a very extensive signification with the ancients. Hippocrates makes it include every hæmorrhage or ulceration of the bowels, every flux, in short, whether critical or salutary, with or without blood. (Prorrh. 2. et Epidem. lib. II.) It was shortly afterwards restricted to ulceration of the bowels, with a tenesmus, or straining, and with mucous or bloody stools, as the Tormina of Celsus, which is the dysentery of the Greeks. Cœlius Aurelianus has described the sypmtoms pretty much in the same manner with Celsus, but re-

tains the Greek name Dysenteria (δυσεντερια ex δυς et εντερον *intestinum.*) Vide Celsus De Med. L. IV. cap. XV. —Cœl. Aurel. de Morb. Chron. lib IV. cap. VI. But Galen returns to the loose acceptation, sometimes defining a dysentery an *ulceration of the bowels*, at other times mentioning four species, but of which only one agrees with the Tormina of Celsus, or the dysentery of the moderns. Aretæus confines the term to an ulceration of the bowels. This notion that ulceration was an essential symptom prevailed till the time of Sydenham and Willis; but it is not essential, nor even common, and the fatal forms of this disease are found more frequently unaccompanied by ulceration than otherwise. Moreover, when ulceration does take place, it is only in the advanced stage of protracted cases. For this assertion we have the authority of Morgagni, Bonetus, Cleghorn and Pringle. Pringle states that there is always observed a remarkable uniformity in the character of this disease in every part of the world, whether in epidemic or sporadic cases. Vide Rees's Cyclopædia, Mosely, &c.

Symptoms. The disease begins with ordinary febrile symptoms, or in other cases with local affection of the bowels; but when the disease is formed, the pyrexia is constantly present. The local affection announces itself by griping and twisting of the bowels, stitches in the side, or only a pain about the pelvis, with a constant fruitless straining to stool, and much flatulence while the body is costive. The disease now soon puts on its characteristic symptoms, viz. a great deal of soreness of the belly, more frequent and urgent disposition to evacuate the bowels, with tenesmus; no natural excrements, but on the operation of a purge the fœces come away in the form of *scybala*, owing no doubt to the greater absorption of the thinner parts during the local and general excitement of the system, as well as to the mechanical action of the bowels, whose contractions now become more violent from the same blended sources of irritation; the voiding of these scybala is followed by a short remission; the discharges now are a mucous matter streaked with blood, a serous or watery fluid, and fragments of a membranous substance, like the scra-

pings of guts, consisting of coagulated lymph, or more probably of detached portions of a newly formed membrane like that which is thrown out upon the surface of the bronchiæ and lungs in cynanche trachealis, pleuritis, &c. They are often taken for abrasions of the internal coat of the bowels, but this cannot occur without sphacelus. Sometimes a pure and unmixed blood is voided in considerable quantity, and in the advanced stage a purulent and sanious matter from the ulcerated and gangrenous parts. The inflammation of the bowels sometimes extends to the stomach and other abdominal viscera. The fœtor which at first was a peculiar faint smell, is now *cadaverous*. Vomiting and loss of appetite frequently occur when the disease is formed. The fever is either synochal or typhoid, according to the climate, season of the year, state of the atmosphere, food, condition of life, and other modifying causes. In warm climates it is sometimes of a remittent form. In camps, military hospitals, prisons, the dwellings of the poor, &c. it is usually typhoid. The general time of its attack which is autumn, the operation of the cold of that season upon the surface, and the intimate connection existing between the skin and bowels, caused Sydenham to denominate it very appropriately "Febris Introversa," or "the fever of the season turned in upon the bowels." The unfavourable symptoms of dysentery are, a low intermitting pulse, restlessness, sudden subsidence of pain, bloody water from the bowels like the washings of meat, and called *lotura carnium*, cold sweats, hickup, apthæ, involuntary and cadaverous stools.

Dysentery appears more frequently in hot than in cold climates, and in those who go from northern to southern climes, and more particularly in those who live principally on animal food.

It terminates sometimes rapidly in a few days, as when occurring more especially in camps, &c. where it is also generally fatal. When the febrile symptoms are moderate, and the disease occurs in private life, it is often protracted to months, the discharges gradually wearing off or ending in a diarrhœa, which is apt to be converted into a slight tenesmus on the least exposure.

It is easily distinguishable from diarrhœa, colic, hæ-

morrhoids and cholera, by the pain or pressure of the abdomen, fever and tenesmus. We should be careful not to confound it with that local affection of the bowels produced by acid purgatives. In this last there may also be a discharge of blood; but it proceeds from an erosion of the internal coats of the intestines, and occurs at an early period, and without tenesmus or fever.

In those who have discharged much blood, the intestines have been found sound after death; owing to this, had the discharges in these cases been moderated or checked, their salutary effect would have no doubt been witnessed in the recovery of the patient. The result of this natural depletion upon the system shows, that dysentery is not, *in all instances*, accompanied by a typhoid state of fever, as some would infer. It denotes rather a high arterial action in the disease, and demonstrates the importance of venesection, as does in fact the general antiphlogistic course which is pursued.

The exciting causes of dysentery appear to be, great heat with frequent alterations of cold and moisture, modified by putrid effluvia of marshes, salt animal food especially, &c. In camps, &c. where it is more frequently contagious, the most powerful media of the infection, besides the natural excretions of the surface and lungs, are *privies*. That it is contagious under such circumstances, and not derivable solely from the state of the atmosphere, is proved by the fact, that whole towns and camps are never seized at once, but the infection is diffused and carried about by clothes, bedding, &c. as in plague, small-pox, &c. Sydenham, Pringle, Degner, and most other practical observers, consider *fruit* as having very little if any agency as an exciting cause of Dysentery.

The defective state of the medical police of our army has long been a subject of proverbial regret. This, indeed, seems to have been the common complaint, ever since the existence of any standing forces in this country; and that there have been just grounds for it, I believe no one can deny. This defect has arisen from two causes; the insignificant patronage, until very lately, bestowed upon the medical science, and from the irregular and injudicious mode which government have pur-

sued in the organization of a medical department. Such as have attained to these honours, having been selected generally from favouritism, or perhaps some political motive, have been too often incompetent to their task, if not absolutely destitute of a professional education. We recollect that this abhorrent system became very glaring on the sudden extension of our army at the breaking out of the late war. The medical staff were formed pell-mell and promiscuously, without the least ostensible regard whatever to the qualifications of the claimant. The numerous abuses, and indeed, we may say in some instances, the ignorant and brutal practice of these pretenders, which occurred on the frontiers, testify to the truth of this remark. We recollect a *Surgeon* in the late war, who was in the habit of amputating the leg by dividing the knee joint! And another who candidly confessed, on receiving his appointment, that he had never opened a surgical book in his life! But while it would be disgusting to particularize what we trust will never be repeated, we hope that the experience we have had on this subject will serve as an eternal beacon to the conduct of government in future.* When the great reduction of our troops took place, at the close of the late contest, the administration profited, we believe, in some measure, by the warnings of the past. The consequence was, that some amendment was effected in the medical police, though it is still radically deficient; since it is wanting in a vigorous, active and intelligent Board, from whom may emanate those wholesome regulations that should pervade and govern every branch of the department.

After setting forth, that it is made the duty of the chief of the medical staff of the army, or a department of it, " to correct all abuses, and prescribe and enforce such regulations as may be considered most conducive to the comfort of the sick, and the interest of the service, with the approbation of the general commanding the

* However numerous have been the promotions of unqualified or improper persons to high and reponsible surgeon's offices in the late army, we would not have it said, that many skilful, eminent and patriotic surgeons have not discharged their trust, during the war, with great credit to themselves and honour to their country. Of these the names are familiar to us; and from motives of delicacy only we suppress them in the present instance. *Edit.*

army, or department, the present author feels himself under the necessity of transmitting "his thoughts and advice respecting a rapid, distressing, and very dangerous disorder, now raging within this department," (page 1.) and which he pronounces to be "Dysentery."

He then commences his subject in the following words: "The dysentery often attacks so suddenly, and so violently withal, that the physician can hardly tell which are the salutary efforts of nature, struggling to restore health, or which the ragings of an insidious disease, running every minute from bad to worse; and it is generally too acute to allow him long to hesitate, there being few diseases where an error in the beginning occasions more fatal consequences in the end." (p. 2.) In this inauspicious exordium, and which may serve as a good specimen of the whole essay, the Doctor appears to have had in view the old opinion of Van Helmont, that those irregularities of the constitution, called symptoms, are the result of a conflict between the *archeus*, or presiding divinity of the body, and the evil genius of disease. This opinion was afterwards promulgated under the modified and less objectionable doctrine of a *vis medicatrix*.

After giving an account of the symptoms of this disease, as described by Sydenham, (p. 3.) and informing us (*ibid.*) that "Sir Jno. Pringle, and all other *good practical writers*, have copied this description," he tells us, that these are but *some essential marks of dysentery*; as if the *essential* phenomena of that disease, and not its varying *modes and modifications*, to which he seems rather to direct his attention, (*ibid.*) should not be the basis of our treatment. From various expressions interspersed through the essay, we are led to believe, that the author considers dysentery, almost exclusively, a *local* affection. For, although he seems to sanction Sydenham's description, in which the disease is distinctly stated to announce itself frequently by a general febrile state of the whole system, yet from the manner in which Dr. W. passes over this description, and also from his own unequivocal declarations on this point afterwards, we are warranted in asserting, that such is his opinion. For example, he thinks Cullen's

definition, where dysentery is made a contagious fever with local affection of the bowels, unsatisfactory and not wrought with this author's accustomed intelligence. (p. 4.) But, more than all, we judge by what he terms the indications of cure, (p. 8.) which are exclusively predicated upon such belief.

With regard to the causes of dysentery, he leaves his readers entirely to conjecture, if we except the proximate, in respect to which, if we may judge from the manner in which he speaks, he is equally in the dark. Thus he seems to consider it a sort of *local affection or abrasion of the mucous membrane, lining particularly the lower intestines, characterised by a kind of hybrid sanguinec—nervous state of inflammation and convulsion; but especially by a peculiar prostration of strength, showing itself early in the disease.* [See his Indications, p. 8. also pp. 6, 7, 14, 17, &c. where he calls dysentery an inflammation, under the changing epithets of an *intense* inflammation, a *violent, convulsive, acute, rapid,* or *spasmodic inflammation!*] This peculiar depression or prostration of strength, he informs us (pp. 6, 7.) depends upon that specific inflammation which distinguishes, in reality, the mucous membranes of the body.

He is very right in calling our attention to this peculiar species of inflammation; the more so as it is so dangerous, and at the same time so secret and insidious. It is marked by symptoms that ought never to be mistaken; and its most undisguised forms may be seen in Bronchitis, Cystitis, Urethritis, &c. But it is not the mucous membrane of the intestine which is always alone affected in dysentery. In a part so highly organized as the alimentary tube, and of such slender and delicate texture, the whole structure is too often immediately involved on the affection of the smallest portion; as we see, after death, by the perforations and adhesions of the intestines, and the abscesses and other morbid changes on the *peritoneum* itself. And of what does this intestinal structure consist? Is not the *greater* part of it made up of coats of muscular and dense membranes? The distinction, therefore, which the author enforces between inflammation of muscular parts and mucous

surfaces, is in this place perfectly nugatory. And he is on this account the still more unfortunate, when he attempts to explain this very ulceration, by saying, that it is the termination to which the inflammation of all mucous membranes rapidly tends. (p. 7.) For this is not true, even of inflammation of mucous membranes strictly so called. On the contrary, the most general termination is in resolution by an excretion of thick mucous or semi-purulent matter. The elasticity of such membranes, and the secretions which are constantly pouring out upon their surfaces, tend very powerfully to counteract the force of the inflammation. Hence the termination in ulceration is rare, except in those parts that are peculiarly sensible, as the fauces, bladder, &c.

Nor is this depression or prostration of strength, as he would fain make us comprehend, a distinguishing symptom even of this species of inflammation. (*ibid.*) Nor finally is it true, that the tension created by inflammation of mucous membranes cannot be taken off by bleeding, without the hazard of life. (*ibid.*) Physicians bleed, and repeatedly too, in cynanche tonsillaris, cystitis, urethritis, (vulgo gonorrhœa,) &c. We will quote his indications in this place:

"1st. To promote a discharge of the natural fæces.

"2d. To relax and duly manage the internal spasmodic construction of the intestines, and the external construction of the skin; and

"3dly. To mitigate and assuage the convulsive motions of the intestines, and the teazing tenesmus; and at the same time to obviate a tendency to putrefaction."

We agree with our author, that it is all-important to select the proper class of *cathartics* in this disease. (pp. 9, 10.) Of these Dr. W. seems to repose most confidence in sulphate of magnesia. He mentions also, with encomium, the Juglans cinerea, or butternut in extract.

The author has recommended *venesection*, in certain modifications of this disease, with a great deal of propriety; (p. 14.) but he has not enforced the important application of *cantharides*. (p. 16.)

In speaking of ripe fruits, as the grape &c. as good

aperients in this disease, the author laments the inhospitality of his own climate.

Our author very justly condemns the practice of heating and stimulating drinks; (pp. 17, 18.) and imposes the due restrictions upon *opium* and *astringents*. (pp. 15, 16.) Among the last he speaks highly of the Prunus Virginiana. (p. 16.) Under this head he should have said at least *something* of oily and mucilaginous enemata, associated with laudanum; such as mutton broth, barley water, &c. administered daily to keep the bowels regularly open, they prove very demulcent to the irritated intestines, and greatly promote the recovery of the patient. He deserves, however, in our opinion, much commendation, in recommending so emphatically at the close of his pamphlet, an accurate inspection of the body after death. The opportunities for such examinations must be very frequent in armies; it is hoped therefore that Dr. W.'s assistants will take care to embrace them. (p. 22.)

Medical & Surgical Correspondence.

An account of the RESECTION *of the* RIBS *and* PLEURA *for the* EXTIRPATION *of a* CANCER, *as read before the Academy of Sciences of the National Institute, by the* CHEVALIER RICHERAND, *Professor of the Faculty of Medicine of Paris, &c.* (*An Extract for the Medical Repository.*)

A SURGICAL operation is here described, of which the annals of medicine offer no example, which necessity has commanded, and a complete success has justified.

Mons. Michellau, *Officier de santé* at Nemours, had during three years been afflicted with a cancer on the left breast, which a surgeon in the vicinity of his residence had extirpated in January last. As soon as the first dressings were removed, a bloody large fungus was discovered in the centre of the wound; this was afterwards frequently destroyed by cauteries, escharotics, and fire, but it was as often reproduced and renewed. A second operation was performed with a view of extirpating a deeper layer of the cancer on the very ribs which were laid bare, yet several funguses shot out again, in spite of repeated operations. After so many useless and painful attempts, the patient being in despair, repaired to Paris in March last, with some hope of rescuing himself from impending death.

At this stage of the disease, a brown soft fungus was seen raising from the cancerous ulcer, a copious redish sanies was discharged from this animal vegetation, which incessantly created an insupportable fœtor around his person; yet his pains were moderate, nor did he suffer much of diarrhœa and clammy sweats; his old and habitual cough was tormenting, but at the age of 42, with a robust constitution, and a perfect resignation, he was an encouraging subject to operate upon.

It was then decided to perform the resection of the ribs from which the cancer had originated. Chevalier Richerand, to whom the patient had applied, did not conceal from him that a portion of the pleura must probably be taken off, and he, perfectly aware of the nature and extent of what was going to be done, readily assented to it. This bold undertaking was proceeded on, the 31st of March, by Chr. R. aided by Professor Dupuytien, and other eminent surgeons; the patient offered his body to the knife, refusing the use of any force against his deliberate resolution, which, indeed, never failed.

The wound was enlarged by a crucial incision; the 6th rib was first seen enlarged and rugged, in four inches of its length; a blunted bistoury being carried over the superior and inferior edges, easily divided it from the intercostal muscles, and then with a saw of an inch and a quarter only, it was separated at both extremities, and the fragment detached from the pleura, was taken off by the means only of a spatula; all this was easily effected, owing to the diseased and thick state of that membrane, as it will be seen afterwards; the 7th rib was immediately disposed of in the same manner, not without difficulty and some laceration; then the pleura was evidently seen thick, diseased and fungous, as a surface from which all the cancerous shoots had originated, and which had been covered by the portion of ribs; it was of about eight square inches, the equilateral sides of which must then be nearly equal to three inches. To omit its excision, would have left the operation incomplete, which as yet had only lasted twenty minutes, and in all points had been successful. Every one of the gentlemen present were provided with some means of arresting the dreaded hæmorrhage from the intercostal arteries, when the pleura would be incised, but whether the curved scissars divided more by pressing and tearing than by incisure, determining thereby the retraction of the vessels, whether these had been previously contracted by the effect of external applications, not a drop of blood was effused; now the external air rushing violently into this cavity of the thorax, compressed the left lung, which, with the heart in

pericardio obtruding at the opening, threatened suffocation; a large and thick compress anointed with cerate was hastily applied; by it the thorax was protected, adding on the whole an extended and thick covering of lint, the whole properly supported by a circular roller.

During twelve hours, the anxiety and difficulty of respiration were extreme, and the patient could not rest but in an erect posture; sinapisms applied in the morning to the inside of the thigh and the soles of the feet, rendered the respiration much easier, and the pulse and strength very much improved. The patient had during three days, nothing for his food or drink but some vegetable mucilage, sugar and light aromatics, when his fever moderated, although he was sleepless, and when the first apparatus after ninety six hours was taken off, a visible adhesion was forming of the lobe of the lung and the pericardium with the quadrilateral opening. Fortunately, however, there was a space not yet completely shut up between the two former, from which, and until the 12th day, it discharged a serous fluid, half a pint a day at least.

On the 13th, the fluid had become a cause of great irritation to the surface exposed, which it inflamed, and as it ceased to flow, it compleated the adhesion of the lung and pericardium to the pleura, and then no air penetrated into the lungs of the patient, who could lay on his left side, and enjoy some rest and appetite.

The wound which had always been dressed with greasy compresses, was rapidly improving; on the 21st day, ordinary dressings only were required for a surface of granulations arising from the pericardium and the left lung; the patient, who had already exercised in an adjoining garden, attempted an excursion through the streets of the capital; and on the 27th day after the operation, nothing could keep him from his home any longer, where he arrived safely, with the direction only to keep a leathery plate to cover the surface of his tender scar.

In this operation, the Chevalier Richerand took again the opportunity of ascertaining the absolute insensibility of the heart and pericardium in a living person, who re-

mains unaware of their being touched. He discovered that the pouch is, during life, of a perfect transparency, equal to that of a glass cylinder enclosing a precious ornament; deceived by it, he could, during a few moments, but suspect that it did not exist. It must be remembered, that after death, this membrane is opake, resembling in this respect therefore, the mirror of the eye, the transparency of which disappears with the vitality of the animal.

With the following conclusion, the celebrated operator terminates his report. That a large opening, with loss of substance of the parietes of the thorax, is not necessarily attended with suffocation, nor with fatal hæmorrhage, or inflamation of the organs, the contact of which with external air, was much dreaded, and that therefore, in a mortal disease of the heart, (the hydropericardium for instance,) an opening in front of it may be formed, sufficiently large, not only to effect the evacuation of the waters in which that organ is plunged, but to determine an adhesive inflammation of surfaces, by an analagous process to that by which the cure of hydrocele is so often obtained. Richerand, therefore, respectfully requests his brother surgeons to direct to him any case of hydropericardium, in a subject who would not be too much debilitated by age or disease, unless they prefer to perform the operation themselves.

R. represents also to the Academy of Sciences, that the same process would be justifiable, to lay bare a lobe of the lungs, which being partially affected or injured, a part could be severed off, and, by ligatures, left to the healing power.

Those attempts, it is true, seem to shock the feelings of humanity by their harshness; but how many surgical operations were thought to be the same only 50 years ago, which are now attended with the most brilliant and undoubted success.

REMARKS.

After this memorable communication to the Academy of Sciences, another report on the same subject was read, by Messrs. Deschamps and Percy, at a subsequent sitting, which confirmed all matters of fact which had

been stated, and all the inferences drawn in favour of a new mode of extending surgical aid to other diseases heretofore abandoned as irremediable. They did not, however, conceal, that this successful operation may not have eradicated a still deeper cause of cancer in the constitution of Mons. Michellau. But even then their illustrious colleague will remain entitled to admiration and gratitude, for having established this important fact, that for the same or other purposes, the opening of the thorax by excision of the ribs and of the pleura is an innocuous operation. We heartily join, however, our wishes to their recommendation, that it should only be resorted to on an equally commanding necessity, and with as much practical skill in the execution. They repeat the advice of Celsus, never to carry their act beyond the limits of proportional probability of success, for the sake of celebrity, lest they would ultimately bring death on whomsoever they pretended to save. *Ne quem salvare volueris, occidisse videaris.* This precept never was more applicable to any period of the progress of surgery, than to the present; when both French and English, and in some instances American, surgeons have successfully devised and attempted the most astonishing operations. Yet too often the chance of success has been questionable; nor could the circumstances of the case, well considered, justify the surgical process, but as an experiment hardly to be tolerated on the persons of criminals who are doomed to execution.

Monography, Surgical Treatment, *and* Autopsia *of an extraordinary case of* Hydrocephalus.

Extract from the Report of Joseph Glover, *M. D. Surgeon General of the state of South Carolina, to the Medical Society of Charleston.*

We are indebted to the Medical Society of South Carolina for the publication of this case, one which extends the practical dominion of Surgery, discloses new phy-

siological phenomena, and withal furnishes us with interesting facts respecting a fatal and frequent disease during the period of infancy.

It is to that ancient and respectable institution, that Joseph Glover, M. D. and surgeon general of the state of South Carolina, &c. has reported, that a female infant, shortly after birth, exhibited symptoms of hydrocephalus, which had rapidly increased; and that at the age of six months, the head measured 18½ inches over the frontal and occipital bones, and 19¾ inches from under the chin over the ossa parietalia. In every other respect the child was healthy and nursed well; she showed, however, a distortion of the eyes and a diseased countenance. Remedial means, such as this case requires, were long persisted in without effect. At the age of nine months, the head measured 24 inches at an horizontal circumference, and 25 at the vertical. Dr. G. had well ascertained that the watery fluid had collected under the dura mater, over the cerebrum; he distinctly felt its fluctuation, between the parietal and temporal bones, in the course of the squamose secture. He therefore inferred, that tapping the head on this part would let off water, and relieve the cerebrum from pressure and the whole head from distension. This operation he performed in presence of many physicians, with an ordinary lancet. He introduced into the aperture a grooved director, with which he obtained a pint of water, much similar to that which constitutes ascites. For many obvious circumstances it was highly proper not to extract a larger quantity of water.

The bones of the cranium being so slightly attached to each other, that the collapsing of the external integuments, or any other force, might displace them. With the same view, and that of protecting the internal parts, bandages were applied with the precaution of antagonist rollers, thereby to support the bones of the cranium and bring them in contact at their suture. The infant did not suffer much pain by this first operation, save some restlessness during the ensuing night, which was easily relieved.

We are now to remark, that this mode of treatment has been continued nearly four months, with the follow-

ing unquestionably favourable effects; not to omit the prolongation of life.

That although, during the treatment, there had been a successive accumulation of water, it did not equal that which was at different times discharged, (about 9¾ pints,) and that in consequence, the two dimensions above mentioned were considerably diminished; once as low as 18 and 20 inches: that the sutures had therefore united, and so much so as to render it impossible to puncture as before, but the operation was performed along the coronal suture.

That the discharge of the watery fluid through the aperture of the dura mater, afforded sensible relief to the infant, restored the power of the eyes to meet in one focus, and of exercising her infantile perceptions, of giving signs of knowledge of the mother, and of moving the head; she could also suck heartily, and pass a considerable quantity of urine, which favourable symptoms were sensibly and successively observed, since the first puncture and until the seventh.

That, although an attack of the cholera morbus was suffered by this child, and was attended with convulsions, it probably was attributable to the nature of the case, which, as the event proved, was irremediable, but did not invalidate in the least the adopted mode of treatment, which, in this aggravated case, meliorated all symptoms, and could not fail being completely successful in a case of a less destructive nature. After eight repetitions of this operation, however, the infant fell into a state of continued fever, which lasted a few days, and terminated her life. The opportunity was then offered, to prove that in this state of disease, the cerebral mass was almost entirely absorbed. We will now hear the reporter himself on this memorable case.

"On tapping the head, three pints of water (by measure) were taken away, (in the presence of Dr. H. Waring, my brother Dr. H. C. Glover, and several others,) making in the whole 9¾ pints, which were drawn off in this case in the short period of little more than three months, from a child who was only seven months old.

"The head being opened, I found that the opinion which I had given of the case was correct. The water had been contained between the dura and pia mater. The dura mater was much thickened, but showed no marks of acute inflammation.

"The brain was nearly all absorbed, but what remained of it, rested with its pia mater on the base of the cranium. It had lost much of its consistence; indeed, I found it impossible to distinguish the several parts of which it was composed, and on appealing to the gentlemen present they, as well as myself, were of opinion, that it was not larger than a hen's egg; and yet, astonishing to relate, this child retained her senses to the last, and appeared to possess many of the faculties of the mind.

"I cannot conclude the statement of this case, without recommending to you the operation of tapping the head in this species of hydrocephalus, in the strongest terms. I believe it to be the surest, safest, and most speedy method of relieving, if not of curing this very formidable disease, and I have now to regret that I did not have recourse to it earlier in the case which I have just related."*

Taking leave of our much respected colleague of the Medical Society of C——, to whom we tender our thanks for this instructive case, we will now offer a few physiological remarks on the occasion.

Attending to the above mode of treatment as perfectly proper, and in no way dangerous, as much calculated to promote the cure of hydrocephalus, as paracenthesis may cure any other kind of dropsy. provided its remote cause in the organs, or in the lymphatic system, is at the same time counteracted by internal remedies; we notice that it obviously points out the necessity of ascertaining the nature or kind of effusion in the cranium; whether under the dura mater, or in the ventricles. The case of Mr. L.'s boy, as related in page 173 of this volume, whose head measured 27 inches in the horizontal, and 28 in the vertical diameter, was of the latter kind, and

* We are happy to remark, that the same mode of treatment, we are informed, has been successfully applied to a more fortunate case of the same kind of hydrocephalus, by James Vose, M. D. of Liverpool.

could not obviously be made the subject of such experiment, as that of puncturing the pulpy substance of the brain. The total absence of fluctuation at any of the fontanelles and sutures, at that age in which some of them are invariably opened, or the reverse, cannot fail to indicate what is to be remedied; a kind of dropsy internal or external to the cerebrum. We are told nevertheless, that in cases of a prodigious collection of water in the ventricles, the cerebrum was compressed against the parietes of the cranium, and reduced almost to the inconsiderable thickness of a membrane; in this state the cerebral substance was yet in its integrity, and could perform the principal functions that are depending from it; and until an accidental puncture, or wound through this substance takes place, it remains consequently a question to be resolved, whether it would be attended with internal hæmorrhage or inflammation, &c. On the other hand, we are in possession of numerous facts, proving that an abrasion or loss of the cerebral substance has not interrupted any of the functions of that organ, and much less that of vitality; yet a puncture may instantly cause death. The mystery or resolution of the problem, we think, is not beyond the power of human investigation; facts are only wanted; a very instructive one is offered in the above case, and in a similar one, which we will relate, proving that neither *shape*, nor *size* of the cerebral organ are absolutely necessary for its function. These are unquestionably reduced to three, *sensation*, *motion*, and *perception*. In no case whatever of hydrocephalus, are we informed of the absolute destruction of any one of them, however impaired they might have been; yet in any case of the kind, the cerebrum has been altered in its shape, or extraordinarily in its size; in the case above mentioned it was sunk to that of a hen's egg! Chevalier and Professor Louis Valentin of Nancy, in his book of memoirs and observations, page 167, relates the following singular fact. A young man servant, 17 years of age, was during three years tormented with a violent head ache, until he was once left apparently dead by an apoplectic fit. In this situation he was so much observed, and so long examined, that symptoms of life were at last perceived,

and of course were promoted, when he was rapidly restored to health again. From this time, and until a more fatal change took place, he never was noticed during four years, to be subject to any ailment, by the gentleman on whom he attended as a servant. He at last experienced another attack, by which he was left lifeless. His body was at last submitted to examination. On opening the elastic *dura mater*, it threw off a great quantity of white pus, besides which there existed nothing in the cranium but a small and shrunk cerebral organ of the size of a hen's egg; the cerebellum and the medula oblongate were apparently sound.

This other instance, like that of our infant, demonstrates the continuation of all cerebral functions by a small, shrunk, and unshaped brain; that it contained its most perfect organization, no doubt can be entertained, but that the smallest injury or laceration would have destroyed it, we have a right to infer as consistently, as that neither *size* nor *shape* are necessary for the cerebral functions.

OPERATION *of a double* SARCOCELE. *Communicated to* SAMUEL L. MITCHILL, *Surgeon General of the Militia of the State of New-York, by Dr.* Sommé, *Professor of Anatomy at Antwerp, in the Kingdom of the Netherlands.*

P. J. RICHARD, aged thirty-six years, was attacked with a double hydro-sarcocele, four years before the date of this memorandum. Several punctures had been made for the purpose of evacuating the waters, and thereby lessening the size of the two tumours.

Early in July, 1817, the consulting physician and surgeon found the scrotum distended to the magnitude of two feet in circumference. The surgeon made with a trocar a puncture on each side, as the two tumours had no communication. The fluid discharged was of a brown colour, and a stinking smell. A fever supervened. On the 20th July, Dr. Sommé was invited to see the patient.

Notwithstanding the evacuation of the liquid by the instrument, there remained a swelling as large as the head of a full grown fœtus. It was round, and the raphe of the scrotum divided it into two unequal portions; that of the left side being much larger than the sarcocele of the right testicle.

The operation was decided upon, and Dr. Sommé performed it on the 26th July, in the following manner.

He made an incision through the skin in the direction of the spermatic cord, and thereby uncovered the left testicle. Two ligatures were placed around the cord, one above and the other below; the one was by way of precaution, the other was secured by a double knot.

The like operation was performed upon the right side. The two spermatic cords being thus tied, the incision on the left side was prolonged to the base of the tumour, by two other incisions that included a portion of the skin of the scrotum, which was much distended in that part. The tumour was detached, the operator taking care not to divide the septum; and it was removed by cutting the cord below the inferior ligature.

The sarcocele on the right side was next attended to. An incision was continued quite to the bottom of the swelling. But it was simple, the skin not being so much distended. Then the testicle was detached from the skin, the small arteries secured, and every article of safety observed as on the other side; and the sarcocele was removed by dividing the cord.

The patient bore with remarkable firmness this severe operation, of which I find no parallel in the books of surgery. For a few hours after the operation, he suffered considerably from the ligatures on the cords; and the next day he had a fever, though it was slight.

On the 29th July, the wound suppurated and the fever ceased. On the 13th of August the precautionary ligatures were withdrawn. On the 8th of September the lower ligatures were detached, and in a few days the wounds were entirely cicatrized: the patient having already resumed his ordinary course of life.

Antwerp, 29th Sept. 1817.

History of an operation of GASTROTOMY, *performed with success, to extract from the abdomen a fœtus, after a rupture of the uterus. In a communication to* SAMUEL L. MITCHILL, *Surgeon General of the Militia of the State of New-York, &c. by Dr.* Sommé, *surgeon at Antwerp, in the Kingdom of the Netherlands, &c.*

ON the 23d of March, 1812, at 2 o'clock in the morning, Dr. Sommé was requested to visit Anne Catharine de Clair, wife of J. B. Gultop. She was in the forty-first year of her age, and in her seventh pregnancy. Being at the completion of her term, she suffered, during the pains of labour, a laceration of the womb large enough to permit the fœtus to pass through into the belly.

Without loss of time, the surgeon made an incision from the navel to within an inch of the pubes. The child, with its appendages, was extracted. It was a female; but was dead.

The wound was closed by three stitches, leaving an opening sufficient for the discharge of blood and of the fluids extravasated into the belly. As the patient had a cold at the time of the accident, and the exertions to cough were very troublesome, the stitches on the 27th were succeeded by slips of sticking plaster, and a bandage round the body.

She experienced fever, vomiting, copious stools, and a lochial evacuation both by the vagina and the wound.

Six days after the operation, however, her situation was better.

On the evening of the 29th there was a considerable loss of blood for an hour. She was reduced to extreme debility. Clotted blood issued from the wound. Her danger was imminent.

On the 30th her pulse was better, though she was feverish. Dejections abundant, forming a diarrhœa which lasted until the 2d of April; aphthæ troublesome in the mouth.

From the 3d to the 8th she gathered strength, and on the 8th suffered a paroxysm of fever for four hours. Afterwards she mended until the 12th, and then began to

stir about; the cicatrization of the wound progressing, though slowly. The woman entirely recovered her health during the month of May, and continued perfectly well to September, 1817, the date of the last intelligence from her.

Case *of* Emprosthotonos, *successfully treated.*

Sumter District, South-Carolina, May 2, 1818.

Sir,

I transmit to you an account of a case of emprosthotonos that came under my observation a few days past; this is considered by Dr. Cullen as a species of tetanus, the existence of which no man will doubt, though the existence of the former has been denied by a respectable tropical practitioner.

On the 20th of April, I was called to see W. P. a lad of 13; I had supposed, from the information given me previous to seeing him, that it was the epidemic of the season, but immediately on entering the room, I perceived symptoms of tetanus, the body violently thrown forwards, the chin resting on the sternum, acute pain under the sternum, changing often to the spine, with a rigidity of the muscles of the whole system, particularly those of the extremities of the tongue and lower jaw, with a contraction of the abdominal muscles, producing obstinate costiveness, dyspnœa, aphonia, though trismus had not yet taken place; on examination, I found that eight or ten days anterior to his becoming tetanic, he had punctured the foot with a thorn, piercing the ligamentum calcis longius that supports so admirably the arch of the foot, arising from the point of the os calcis, and is inserted into the os cuboides; he had imprudently pursued his occupation on his father's farm, which was ploughing, when he could only use the extreme part of the foot and toes, thereby keeping this ligament continually under the weight of the body.

I laid the wound quite open, evacuated a quantity of thick pus, introduced a dossil of lint rolled in the tincture of opium, giving at the same time one drachm of

the same every fifteen or twenty minutes, until the spasms were allayed; the pain still continuing under the sternum, I applied a blister, which relieved him of that pain considerably; I now attempted to open the bowels first by enema, but the patient could rest in no position that admitted this application; altering his situation produced a return of the symptoms; I gave repeated doses of the oleum ricini, which soon induced a catharsis; the patient was now almost free of any symptom of tetanus; warm fomentations were applied, to assist in relaxing the muscles of the abdomen. There being evident inanition from the first of his attack; I now deemed it necessary to use some prophylactic, as I apprehended a return of the spasms; to this end, I made use of bark and wine, until a partial intoxication was induced, which I ordered to be kept up two or three days, with the dressing of the wound as before; and am now happy to state, that my patient is out of danger.

I have been induced to make this communication, not because I expect it will be something novel to any practitioner whatever, but because experience teaches in a most glaring manner, the absurdity of some things advanced on the treatment of this disease by a late tropical writer. The treatment of this Herculean disease stands where it did in the days of Hippocrates; all attempts at a rationale have proved abortive, eventuating in nothing to the advantage of the sick. The prudent physician will act *pro re nata*, not expecting any particular mode of treatment to be successful in every case; mercury has been proposed as a remedy in trismus; but with all due deference to the high authority from whence it came, I beg leave to state, that there have occured very few cases of trismus in which mercury was admissible; no doubt this *hobby* of the indolent practitioner has been stained with the blood of hundreds.

Tuî observantissimus,

JOHN T. P. YEARGAIN.

Dr. Felix Pascalis.

Case *of* Chorea Sancti Viti, *successfully treated.*

Orangeburgh, S. C. April 16, 1818.

Dear Sir,

It is from a patient collection of facts, that we are enabled to suggest any thing like a correct theory of disease. The following case is therefore related with the hope that it may elucidate some principle in this distressing disease of St. Vitus's dance, as well as to invite the younger part of your readers to an investigation of *it*. In the treatment there is nothing new, except the application of the spirits of turpentine. With you I leave it to say, whether it is of sufficient importance to find a place in your Repository.

Mrs. Jane Waters, aged 26 years, was taken with a bilious intermittent fever about the 25th of June last, of which she had got clear for a few days, and relapsed about the middle of July, from which she was again in a few days in a favourable convalescence, till about the 20th of August, at which time she was taken with irregular jerkings, or spasms, that seemed quite unaccountable to her husband and friends. At the onset, these spasms were periodical, and worse every other day, and were rationally enough taken for an anomalous intermittent. The case was accordingly treated as a sequel of fever, which would in all probability give way to the same treatment; in this, however, they were disappointed, for she seemed to be getting worse every succeeding day, insomuch so, that about the 30th of August, she was not able to command a single muscle of her body. In attempting to look at a person, her eyes were so irregularly convulsed by alternate spasms and relaxations, that she was utterly incapable to fix them, and this, together with her interrupted accents of speech, rendered her an object of great distress. The voluntary motions of her hands, feet, and body, were lost in an equal ratio; her pulse was small, frequent, and weak; as to its regularity, I could not determine, owing to the continued action of the muscles; her tongue was clean; her appetite was moderate; her mind seemed easily affected, and was evidently impaired in its opera-

tions, of which she herself felt perfectly sensible; her bowels were slow, but not so much so as to be thought to have any agency in the production or continuation of her disease; her skin was cool and soft; she had been treated by emetics, tonics, and blisters, but as already observed, with no good effect; her house at this time was a scene of distress; the night before I saw her, a friend who had sickened at her house, and whom she respected, died there; other members of her family had been sick too, perhaps her children likewise, for she had three; her father's family too were afflicted with the fever, to which add, that she was a woman of exquisite sensibility; in this situation we can well imagine the gloom of surrounding objects, and the consequent effects which were made on her mind.

I was called in consultation with Dr. Tarrant, a young man who had attended her through the whole of her sickness. The probable success of the cold bath in her case was mentioned, to which she objected with great vehemence, attributing her present disorder to a partial use of it on her head, while recovering from the fever. After deliberating on the case, the following plan of treatment was adopted, viz. to blister on the extremities alternately in continued succession, to give cathartic pills every second or third night, composed of calomel, gamboge, and aloes, in such doses as to procure a gentle motion or two of the bowels by the ensuing morning, to use the warm bath, and an anodyne every night, to use a muriated tincture of iron, and a pint of wine every day, with a light but nourishing diet. This plan was adhered to only in part; the warm bath was used, the blisters were applied, and the muriated tincture was given, with the tincture of valerian, but the pills and the wine were but imperfectly attended to; however, during the first week she appeared to mend, but not in that degree her husband and friends expected, so in the second week there was a great relaxation, and she soon got as bad as ever; about this time, by the advice of Dr. Tarrant, she took an emetic, but without any benefit.

She and her friends were again warmly requested to pursue the same plan, with some small deviation, that is,

to give pills of the same kind, to use the decoction of bark with cloves, and wine more freely, with the artificial tincture of musk; this was pursued a few days with no apparent success. Now, another distressing occurrence took place, which deprived her of her reason, and seemed to threaten her life every succeeding hour; one of her children took the fever and fell into fits; on her mind it produced the most alarming effects; she was soon afterwards taken with strong convulsions; she remained in this deplorable situation six or eight days; this was the 30th of September.

About this time, the propriety of using spirits of turpentine internally in her case, with brisk friction, occurred to me, from a remark I had seen in your Repository, of its possessing the power of decomposing the atmosphere, and absorbing oxygen. The idea struck me that it might have a very salutary effect by proving a gentle stimulus to the skin, and thus equalizing the excitement of the different systems. This idea met with support from having read a case of chorea, which was cured by almost investing the patient with blisters after several of the common remedies had failed. Accordingly we advised a free use of the spirits of turpentine, with brisk friction, first taking the lower extremities, then her body, and then the upper extremities in rotation, to be rubbed at least twice a day; a continuation of the same cathartic pills which she had been taking was likewise advised. I am happy to say her situation became immediately improved, and continued gradually, till her health was restored; however, it is well to observe, that when she got so well as to be able to be moved, she went to her father's, who has a large and affectionate family, that consoled and alleviated her distress in the most tender manner. After this period she used, I believe, tonics, as well as the warm bath at night; in the mean while she continued the spirits daily; in six or eight weeks her health was perfectly restored, and continues so at this time.

With sentiments of the highest consideration for your success in the republic of medicine, Yours,

RODERICK MURCHISON.

FELIX PASCALIS, M. D.

CURE *of* ANEURISM, *by a temporary Ligature. From the Italian Journal of Physic of Brugnatelli, &c. April,* 1817. *page* 144.

PROFESSOR PALETTA, chief surgeon of the Hospital of Milan, is the first who has realized that great desideratum in surgery, and for which the celebrated Scarpa had pursued many successful experiments on various animals. (Vid. chap. ix. of his Treatise on Aneurism, Fr. transl.)

The subject, a man of forty years of age, weak and thin, was not of the best constitution for this operation, nor could any particular cause be assigned for the popliteal aneurism with which he was received into the hospital; the tumour had grown to the size of a turkey-hen's egg, and the whole left limb was painful and swelled. After the usual preparatory means, or attempts of compression, the operation was determined upon, and performed. One round ligature only was applied, as devised by Scarpa, over a small cylinder of linen surrounding the femoral artery. The patient experienced more pain than usual; but pulsation in the tumour, leg, and foot, was never felt again, and the last remained extremely cold. This untoward symptom, however, did not alter the proposed experiment, which was to take off the ligature and the little cylinder on the 4th day from the operation. The wound was found healthy and suppurating, the artery perfectly hardened, no pulsation below the interception; the tumour two thirds diminished: nothing unfavourable, in short, but the continued frigidity of the foot. Progressive pains in that part called for anodyne remedies and tonic applications, opium and wine, &c. while they prognosticated the inevitable loss of the foot, which separated in a few days, by dry mortification, without any other evil to the patient, whose wound on the thigh was perfectly healed by the first intention, and the aneurismal tumour totally disappeared.

The partial loss of a limb is rare in the aneurismal operation of the femoral artery. It may perhaps occur once in ten cases. A certain degree of vitality and energy in the circulating system is unquestionably re-

quisite, to substitute a new apparatus of circulation to that which has been destroyed by it; and in cases debilitated by age or by constitution, the efforts of nature may be rendered abortive. This accident has nothing to do with the object of this observation, which is to demonstrate, that a pressure by the ligature on the femoral artery, during four days, has been sufficient to intercept effectually the transmission of blood to the tumour, by which the aneurism has been effectually destroyed. Admitting that some organic cause of contraction or rigidity in the subject has really prevented the ordinary circulation of blood through anastomizing vessels, it is fair to conclude, that it should have increased the impulse of blood in the present case, had it not been for a two-fold resistance, that of the adhering parietes of the artery, and of the coagulated blood in it. It will now, therefore, remain as another improvement upon the experimental discovery, to ascertain only, whether a shorter period than four days would not really be sufficient to intercept circulation into the aneurismal sac; that thereby an operation, connected with so many difficult circumstances, and thereby more dangerous, could be simplified and reduced to a temporary pressure of one or two days; which on the other hand, we conceive, could perhaps be applied by an easier process than that of a ligature.

INTELLIGENCE.

Atmospheric Constitution and Diseases of New-York. September, 1818.

Since our last number, which closed the Spring period, our atmospheric constitution has taken its principal character from North, N. W., and S. W. winds; it has consequently been warm and dry. As the sun was advancing, heavy and immense clouds were rolled over our heads from the west, which were daily threatening gusts of rain and thunder; yet they were soon blown off: the showery season became perfectly dry, and made it doubtful whether it would not be destructive to the vegetation of grass and garden stuff. The heat, however, becoming more and more intense, concurred to the formation of sufficient rains at distant periods, which have again imparted to us a very fruitful and healthy season. On the 30th of June, on the 12th of July, and the middle of August, the thermometer ranged from 92 to 95 degrees. It is remarkable, that in different parts of the city, even in the shade and northern exposures, various observations were made and reported, which were of many degrees higher, and unprecedented, such as 100 degrees, a rare temperature, and which could not exist without materially injuring the health of a large population.

After having ascertained the fact of diversity of observation, it remains only with us to account for it, by the various degrees of light in which a thermometer being suspended, must materially alter the result of observation, either by being in an absolute shade, or in exposure to the rays of the sun, with considerable refraction. An equally interesting remark is, that with all the intense heat we have experienced, the season has not been miasmatic, nor have we observed any of the numerous effects from marsh effluvia on the human constitution. It was no doubt owing to the continuation of westerly winds, purifiers of the atmosphere, and to the scarcity

of rain and moisture. A medical topographist, therefore, can illustrate that important question in the history of epidemics, that the heat alone of climates or seasons is not deleterious; that the wet condition of the ground is a certain *remote*, and a quantity of perishable or corruptible matters is the *proximate* cause of miasmatic diseases.

What excellent precepts these are for boards of health, and other contagionist institutions, we need not farther to explain.

Instead of enumerating epidemics in our metropolis, or a catalogue in routine of diseases incidental in large populations, we would rather investigate how, and why our bills of mortality have increased, and during several weeks doubled their average? *The first* cause is the extraordinary concourse of foreigners. Many of the inhabitants of Europe and South-America (perhaps the whole world) look to the United States when suffering under political and local evils, and many of them unseasoned to our climate, have been destined to increase our bills of mortality, before they had recovered from the toils and dangers of emigration! *Secondly*, *pertussis* (hooping cough) has extensively prevailed. During the great heat of the summer, hooping cough, unless promptly abated, is deleterious on the infantile cerebral organ; the healthier the child, the worse the consequence, and many perish either with *hydrocephalus*, or with convulsions. Of the third cause, *the cramp in the stomach* in consequence of drinking cold water, we will now propose our views, and the result of our repeated observations.

Cramp of the Stomach from drinking cold water, by Felix Pascalis, M. D.

THIS fatal kind of spasm is very frequent in large cities of the United States of America during the intense heats of summer, and I believe as much as tetanus in the W. I. islands, and other tropical countries; medical writers have already classed it with tetanus and other

spasmodic diseases, (vid. R. Thomas, M. D. Practice, p. 342.) but it is not heard of from warm climates in other parts of the world; yet we cannot substantiate any evident cause of it in this country more than in another, unless we have recourse to the precept of Hippocrates, to study well the nature of our soil, and of our waters.

Our insular situation on a deep river, and on a deep arm of the sea, while we approach the continent by a very narrow and shallow space, proves that no stream of fresh water on the island can be had, but must originate from the surface of the same, without any supply from any main body of water of the continent; the immense current of the Hudson, yet salt water to a great distance from us, gives no moisture to the island of New-York, except where it may create a salt pond. The fresh water of our wells is therefore the product by infiltration through the upper strata of our island, of a sandy and gravelly nature, interspersed all over with granite and other masses of primitive formation. That they are porous and accessible to external heat at different points of the ground, and where evaporation of water is actively effected in an inverse ratio to the external temperature, we doubt not; hence the hotter the weather, the colder our well waters, and perhaps as low as 40°, which coldness, with the least febrile irritation in the human system, gives a contrast of nearly 70°; that such a violent cause should immediately create spasm in the stomach is the more obvious, that the application of ice or cold water externally on a heated body in the ordinary situation of bathing or swimming, is known to be productive of spasm and cramp. The class of people who generally happen to be the victims of this fatal contrast, are still more predisposed to its effect by intemperance, fatigue, and other irregularities, and, consequently, the spasmodic attacks prove the more deadly to them; the cramp soon extends to the diaphragm and præcordia; the excruciating pain caused by it is frequently of short duration, because the sufferer loses his senses, staggers, and falls down; it returns perhaps violently, and is again oppressed by anhelous respiration, and by impending suffocation; the pulse is very slow, depressed, or

intermittent; the skin of the sufferer grows more and more of a dark purple, and black suffused; and if the spasm extends still higher above the diaphragm, an apoplexy with asphixiation terminates the scene; but if it descends along the alimentary channel, an iliac passion is added to this train of horrid symptoms, and by a retroversion of the peristaltic motion of the bowels, the fæces are regurgitated through the mouth, leaving no further hope from any remedial attempt. Of this description many cases have fallen under my observation during the last season, at different periods of it, and when the thermometer had during many days ranged 88° and upwards; an estimate therefore may be reasonably inferred at an average of about 60 cases during the warmest part of the summer, two thirds of which, I suppose have not received timely assistance. Were further proofs required of some predisposing cause concurring to the fatality of the cramp in the stomach, and in many instances of a state of fever which has momentarily ushered in and produced a burning thirst, I would mention the case of a man who was timely warned of the danger of thus quenching it, and who, apparently delirious, would still run to the stream of water, which soon caused his destruction. The result of our practice in other cases has satisfied us that the most pressing indication was that of unloading the stomach of its contents. In the case of a robust but thin man, 26 years of age, a ferocious fit of madness succeeded to the cramp, which was nearly going to prove murderous; the subject exerted a degree of strength that could hardly be overcome by six stout men who had been called to his assistance; he was also lockjawed; but the relaxation of the muscles having been promptly effected by the external application of ice, a strong emetic solution was timely enhibited, and put an end to all spasms.*

To the humane who particularly superintend the means of imparting prompt aid and advice for this kind of sudden disorder, I beg leave to represent that their

* Dissections of subjects who died from cramps in the stomach, emphatically prove that the spasm affecting principally the diaphragmatic plexus, immediately unequalizes the columns of blood from and into the heart, from and into the brain; that the same disorder extends to the pulmonary apparatus, while the stomach itself bears no mark of inflammation.

instruction should enjoin to give at first a strong emetic solution of antimoniated tartar of 6 or 8 grains; if it can be poured in the stomach, it will soon counteract the cramp, by creating another sort of action, and procuring a salutary discharge of the offensive contents; but if trismus or the lockjaw renders it impossible to give this remedy, recourse must be had to bleeding, and the application of ice on the face, neck, and breast, until the emetic can be administered. That popular remedy *laudanum*, so much resorted to *in those* cases, I apprehend is untimely, when there is congestion in the *primæ viæ*; if not, and it is repeated in large doses, it will prolong the spasm of the stomach, which is similar to that which it creates by poisoning. The antispasmodic effects of opium may be relied on for the extremities of the body and for trismus, but not for diaphragmatic spasms in the præcordia, nor for the brain.

Notice of those Signs whereby death is to be judged unequivocal and certain. Journal de Medicine, Paris. October 17.

1. If you gently press down the jaw of a recent dead body, and it will lower, leaving the mouth opened; if you likewise raise the upper eyelids, and they keep the same given position, you may conclude that life is departed; on the contrary, neither the lower jaw, nor the eyelids, would be fixed by an ordinary pressure or power, if there was a spark of life remaining, so great is the natural power of the *flector* muscles against the *extensors*.

2. Inspect the palm of the hand, and the sole of the feet; they will be yellow if death has supervened.

3. While there is life in the body, if you hold together its fingers extended and interposed between candle light, you will sensibly perceive their transparency; but this medium will absolutely intercept light after death, which coagulates and decomposes blood.

4. When fire is applied on the skin of a living body, it always causes upon it the formation of phlictenes; but these cannot take place on the cadaver, because

this phenomenon is the effect of a reaction that cannot exist after death.

These few and simple means should always be present to the mind of practitioners, nurses, and other attendants on the sick, to be tested whenever there is suspicion of apparent death; if the occurrence of error has unfortunately too often taken place, we wish to state that it was owing as much to the nature of the disease, as to circumstances under which the care of a sick person had been committed to improper persons and nurses. We hold, that no *medical* authority could be liable to error between life and death; nevertheless, to our brethren in practice we plainly take the liberty to mention, that after great accidents of concussion or injury on the head, drowning, and asphixiation, a kind of cataleptic state may ensue, during which, signs of life are absolutely unperceivable; therefore, that proper means to restore it, should not be desisted from, or renounced until the above signs have been tested. Death may ensue from the continuation, or protraction of a cause, which of its nature is not immediately breaking the thread of life.

A newly invented Forceps.

M. Brulatour, Professor of Surgery in the royal school of Bordeaux, has transmitted to the medical society of New-York his printed memoir on the subject of an instrument to which he has adapted considerable improvement, as much for use as conveniency in difficult parturition.

The two male and female branches of an ordinary forceps, each being considered as divided into two parts, the handle and the spoon, he substitutes two different kinds of the last, one of which is ribbed on its internal surface for the purpose of more effectually grasping at any dead mass, and the other which by an upper curved edge, can be applied as a crotchet in case of preternatural form of the same; any one of them can of course, be used according to circumstances, and per-

haps on one side only, without the difficulty of displacing the whole instrument, and making a second operation for the insertion of the whole; this is the more easy, that the adjusting of any of the spoons is made by a screw on the dove-tail of it, above the principal and middle hinge. Other improvements are provided on the handle of the branches; the first is an oval aperture at each side, for the purpose of receiving a band for a more regular and uniform force at extraction; the second is an aperture for an adjusting screw when the two branches have been properly fixed; and the last is a small graduated scale of lines of 2 or 3 inches, which being erected in a rectangular direction from one branch, enters a grove of the opposite, and exactly offers to the eye the true corresponding diameter of the internal mass. We seldom have seen more ingenuity and neatness in the design and execution of so many operative objects.

While we heartily join our acknowledgement and applause of these original improvements, so well calculated to abridge some of the most critical sufferings in difficult parturition, we apprehend that something like indifference is frequently observed among our practitioners respecting the choice and preference of obstetrical instruments, for they are most happily and very rarely called for. Dr. Wm. Shippen of Philadelphia, and Professor of Anatomy, an eminent accoucheur, declared to Dr. F. P. in the year 1802, that during 30 years of practice, he never had been obliged to have recourse to any instrument, however large had always been the circle of his business; nor could we from observation substantiate any thing like repetition of occurrences of original deformity, or other causes imposing the necessity of the forceps. It would not at present comport with our space and time to investigate the causes of a great difference between the frequency or rarity of certain evils among the European and American population. We will only apply to the human species, the idea of the celebrated Buffon, that "crossing the races, always improves the breed."

A new mode of Amputating the Leg.

M. Garigue, Surgeon in the Navy Department of Brest, has offered as a subject of inaugural dissertation for Doctoral honours, a new mode of amputating the leg.

It is to be performed exactly through the head of the tibia, commencing by the centre of the head of the fibula, which is designated as the guiding point for the section. The advantages of this mode of amputation in preference of any other, are thus far remarkable.

1. Very little fleshy or muscular fibres to be divided besides the skin.

2. The head of the tibia being very spongy, will immediately project favourable granulations for the healing of the stump, saving thereby many difficulties which arise from the slow progress of knitting at the compact part of cylindrical bones.

3. Only one ligature on the popliteal artery above the point where it branches out, and no interosseous muscles to divide.

4. Only one bone to saw, save the small head of the fibula; no internal formation of pus along the tendons to be feared. The author had twice performed the operation with complete success.

We were wishing something said of the nature, dangers, and symptoms caused by resection made so close to the capsula and ligaments of the patella; it seems hardly possible that the stump will always remain in a sound and healing condition.

Be it as it may, one difficulty is pointed at by the author in the dressing of the stump, which he directs to keep in a rectangle flection, to oppose a considerable degree of retraction of the tendons and muscular remaining fibres; yet it must be moved now and then to keep it flexible, and to give the patient the opportunity of lying on his back without always bearing upon the stump, and thereby causing in it great irritation.

With respect to a portion of the head of the fibula remaining in the stump, the author says that it may be easily removed, or left, and has no choice about it.

The author acknowledges that this operation had been anciently performed by a M. Lamothe, and had been noticed by Van Swieten.

Adipocire.

A company of adventurers has repeatedly been engaged in exploring with a diving-bell the hulk of the British frigate Hussar, which sunk during the American revolution near Hell Gate. This is a narrow, rocky, and dangerous passage about seven miles north-east of New-York. The Hussar struck on the pot rock in going through Hell Gate, and bilged; the officers finding her in a sinking state, attempted to run her on shore, but she sunk in 6 or 8 fathom wather, about two miles to the eastward near the shore. The divers have directed their attention to the *run* of the ship, to obtain therefrom the specie supposed to have been on board, and which it is said was destined to pay the British troops then acting against the revolted colonies. Hitherto they have been unsuccessful in obtaining the money, if any was there; but it is thought they have paid themselves for the labour bestowed, in raising up the guns, the iron work, and copper of the vessel. During the past summer (1818) they raised up a barrel of salt pork, and some candles, the whole of which was converted into *adipocire*. The specimen we saw was very fine, and of a beautiful white colour, and much superior to that obtained from the body of the negress found in the rear of the city-hall last year, a specimen of which we have in our possession, and the account of which is given in a preceding number. (See Med. Repos. Vol. IV. No. I. p. 103.)

Memorandum of a Person who introduced a Sword-blade through the gullet into the stomach.

On the 20th of August, 1818, John Baptist Declou, a native of France, and in the eighteenth year of his age, did, at my house, push down his throat an instrument of steel, that had formerly been a sword blade. I examined it to my satisfaction, before he introduced it; and I measured it by a rule after he withdrew it. The length was about twenty-three inches; the breadth at the smaller extremity more than a quarter of an inch; the width near the guard of the hilt, an inch and five eighths; and the thickness such as is usual in metallic fabrics of this kind. The whole length was concealed within his body; for the lips were in contact with the guard, and the blade wholly out of sight. My opinion is, that it passed through the gullet into the stomach.

He besmeared the instrument with some spittle before he introduced it; when the point passed the upper orifice of the stomach, there was something like incipient retching.

He had learned the art from an Indian juggler; and had never experienced hæmorrhage, or other serious inconvenience, from the practice. Usually the sensation was such after the removal of the sword-blade, that he found it comfortable to swallow some bread; yet, although bread was offered to him on the present occasion, he declined to take any.

For fear of inflammation and fever, he observed a spare and abstemious regimen.

The performance of feats like this, for pastime or gain, proves the safety of employing the probang in obstructions of the œsophagus; shows the practicability of introducing food and drink in paralytic affections of the gullet, into the stomach; and suggests a mode of relieving that organ from redundant fluids, and perhaps, occasionally, from poisons. S. L. M.

Poisonous qualities of the Cicuta Maculata, Linn. Water Hemlock.

Dr. Aaron C. Wiley, of Block-Island, communicates another instance of the poisonous effects of that plant, as happened in Rhode-Island, on several children who were in search of some sweet root. (Calamus Aromaticus.) The fact is much similar to that we have related in our second volume. (New Series, p. 303.) We there gave its botanical character and description from the best authorities the country could afford, especially from the celebrated Muhlenberg. The plant has afterwards been kept many years in the garden of the hospital of New-York for inspection and observation. The occurrence thus noticed from time to time, cannot fail of impressing on the mind of those who live in the vicinity of aquatic grounds, the important duty of acquainting themselves with this noxious plant, better to guard their present and succeeding generations against disasters similar to those which have been noticed.

Alisma Plantago, the great Water Plantain.

The European papers have lately much extolled this plant as a perfect antidote against the poison of canine rabies; some of the same kind has *already* been recognized in various parts of this country; we have seen it in New-York in its fresh state; its botanical characters seem perfectly to agree with the description obtained from the English papers; its properties are said to have been discovered by a peasant of Simbrick in Russia, and made known to the public by a counsellor of state, named Lewshein, who has written a detailed report, bearing most ample testimony to its efficacy, and prescribing the mode of administering it; its antidotal properties seem principally to be contained in the root, which, when devested of the tuft of fibres, resembles an onion. This is to be dried and reduced to powder, to be strewed on a slice of bread and butter, &c.

The plant in question grows in water marshes, lakes

and stagnant pools, and we believe is to be found in such situations in almost every part of these states; it is flowering in the months of July and August.

The following are its acknowledged characters.

Root perennial, white, somewhat bulbous, coated, and furnished with a tuft of numerous fibres.

Leaves all springing from the root, standing on long footstalks, ovate, pointed, smooth, ribbed, perfectly entire, upright, slightly waved, the footstalks semi-cylindrical, at bottom sheathing and purplish.

Stalk obtusely three cornered, naked, smooth, from one to three feet in height.

Branches producing the flowers, disposed in whirls round the stalk, and the lesser branches in a similar manner round them, varying greatly in number, and naked.

Stipulæ at the base of each whirl, membranous, withered, and sheathing.

Calyx: a Perianthium of three leaves, the leaves ovate, a little pointed, concave, marked with lines, spreading membranous on the edge.

Corolla, three Petals, roundish, purple, gnawed on the edge, flat, spreading, somewhat remote from each other, claws yellow.

Stamina, six Filaments, fine and tapering, slightly bending inwards. Antheræ greenish.

The Pistillum magnified. Germina numerous, to 12 or more placed in a circle. Styles as numerous as the germina, filiform, upright. Stigmata simple.

In considering the multitude of remedies or specifics which from time to time, have in every nation obtained credit or celebrity for curing the dreadful poison of canine rabies, medical science has much to regret the want of sufficient evidence of the efficacy which has always been attributed to them, in order that with an enlightened sense of humanity, we might dispense, in cases of a recent bite, with cruel, but surely preservative means against hydrophobic madness.

Of the certainty of remedial surgery after the bite of a mad dog, and of the positive evidence of its curative efficacy, the learned are satisfied all over the world; because it rests upon repeated instances of its application on a great number of individuals who were treat-

ed accordingly, after receiving a wound or wounds from a rabid animal, and of those who having been injured by the same, and neglected, unexceptionably have perished. This we repeat, better to remind our readers of the kind of proof with which they should reason on this important subject; to weigh and compare evidences, those that are *positive*, and others which are only *negative*. For instance; let us suppose that many heads of cattle have been bit by a mad dog; that one or two of them, after the exhibition of a remedy, have remained free from bad symptoms, while the others, for which nothing could be done, have really run mad; yet no *positive* evidence can be properly inferred of the efficacy of the antidote, because these animals could have been wounded, without receiving the poison, and because the remedial substance which has been effectual in the brute, might be perfectly inert in the human system.

On the other hand, evidences from report or hearsay, are certainly less authoritative, however distinguished might be the names which promulgate them, than those which result from ocular observation. The same exception we have a right to make against presumed authority of personal opinion, or mistaken views of benevolence, in favour of evidence to be derived and construed from alledged facts only.

We might add, respecting the credit and reputation of these new remedies, that as medical science is founded upon natural philosophy, some account should be given of the component principles of the ingredient or plants which is proposed as an antidote; must we implicitly believe that this or that specific will really possess a powerful agency on the human system, unless something is told of the nature and component parts which constitutes it?

These are all questions which we humbly propose to minds inclined to promote useful knowledge, and who are the most substantial friends to suffering and afflicted human creatures.

Nux Vomica.

Dr. J. J. P. Yeargain, of Sumter District, S. C. has lately informed the editors of his high confidence in the nux vomica for the cure of paralysis, as resulting from practical observation. He had lately exhibited it to an aged patient labouring under a severe hemiplegy with loss of motion and of speech; the case had baffled ordinary but regular remedies in this disease, when the affected limbs were becoming much emaciated; and when Dr. Y. resolved to apply the new remedy, as described and as directed in the essay, page 140 of this volume.

"The gentleman commenced with three grains three times a day, during 33 days, until he was able to take 24 grains three times a day. His appetite was generally increased; pricking sensation over the palsied side; some convulsive motion was also perceived; the will seemed to be regaining its dominions over the muscles; he was even able to walk and raise his hands to his head; he could use the tongue and lips, which he had not done before, *urtication* was at the same time used. He continued to take the nux vomica until the 10th of June, when he could articulate well, and was apparently recovering fast."

Some unavailing circumstances took place afterwards, especially the want of the remedy, which interrupting the course of treatment, brought back the patient to a state of infirmity which his age could not bear much longer. We particularly thank Dr. Yeargain for his valuable observation, and the more interesting, that it evidently proves that the loss of muscular energy produced by paralysis may really be revived by the artificial convulsions produced by the *strychnos nux vomica.*

The American Pharmacopœia.

In the preface to the Pharmacopœia of the Royal College of Physicians of London, edition of 1809, Dr. Powell, the translator, observes; "it is to be lamented

that a general Pharmacopœia Britannica is not established, as one common dictionary, to which practitioners throughout the whole empire may uniformly refer with confidence, and without the chance of mistake, either in the name of an article, or the mode of its preparation."

In France, a national pharmacopœia is about to be formed, as we learn by the following article from the London Medical and Physical Journal.

"By an ordinance of the King, bearing date the 8th of August, 1816, the Pharmacopœia Gallica, ordered to be prepared by Napoleon in 1803, is forthwith to be printed; and, within the date of six months from its publication, every apothecary is bound to procure a copy, and always to prepare his medicines strictly according to the formula, under a penalty of 500 francs."

We have made these two quotations, to introduce our own national pharmacopœia, which is now preparing.

In January 1817, Dr. Lyman Spalding submitted to the New-York County Medical Society a project for the formation of a national pharmacopœia, by the authority of all the Medical Societies and Medical Schools the United States.

The plan proposed was, 1. That a convention should be called in each of the four grand divisions of the United States, to be composed of delegates from all the Medical Societies and Schools. 2. That each district convention should form a pharmacopœia, and elect delegates to meet in general convention in the city of Washington, on the first of January, 1820. 3. That the general convention should, from the district convention pharmacopœias, form the national work.

In the County Medical Society, it was committed to Drs. John R. B. Rodgers, William Moore, John Watts, jr. Lyman Spalding, and Alexander H. Stevens; who, after having corresponded with several of the leading medical men in each state, reported a set of resolutions, which were submitted to the Medical Society of the State of New-York in February, 1818, and by them adopted, and ordered to be carried into execution, by their committee, consisting of Drs. David Hosack, J. R. B. Rodgers, Samuel L. Mitchill, John Stearns,

John Watts, jr. T. Romeyn Beck, Lyman Spalding, Wright Post, and Alexander H. Stevens.

Circulars were issued in March, to the Medical Societies and Schools in the Union, inviting their co-operation. All the institutions, which have since had meetings, have approved of the formation of the work; and most of them have appointed their delegates. From the spirit and zeal with which the delegates in every section of the country have commenced their preparatory labours in the formation of this national work, we have no hesitation in assuring the public that the American Pharmacopœia will appear at the time proposed.

Report of the Physician of the Lunatic Asylum.

This interesting document, by Wm. Handy, M. D. physician to lunatic asylum, is the first which was ever published, although, this institution has been ten years in operation, yet always conducted with much seclusion from medical observation.

Why there is but one physician appointed to attend an assemblage of nearly 80 lunatics, while the sick of the same hospital have no less than four regular physicians, and four regular surgeons, beside house physician, surgeon and apothecary? why none of them, except the last, are ever directed to visit, to assist or consult a physician of the asylum? this exception or regulation appears to us unaccountable, the more so, that on an average, nearly one half of the lunatics must incessantly be under some kind of treatment, not to add external injuries, attempts to suicide and other surgical cases which have frequently taken place and against which the best vigilance cannot always guard. To give some explanation of this system, it has been suggested that in this age of improvement, it had been found out that very little medicine, or medical aid, was required for the lunatics, and that a moral treatment, with a comfortable, clean, and safe keeping, were the only necessary provisions to be made; this is another error. In the largest institutions of this description in Europe,

physicians are left the only judges of the moral and bodily treatment, whether reason and mind are supposed to be recoverable or not.

Another subject of regret in the foundation or management of our asylum, has been that of immense expence for a stately building, with marble floors, iron railings and inclosures, stucco or painted walls, yet so small and defective for want of room, that long ago it has ceased to be proportionate to the wants of our population, and in many instances of the most distressing nature, no admittance could be procured for the relief of the maniac and the safety of his friends.*

Returning to the present report, it is so satisfactory as to what relates to the arduous task of the physician, that we regret its present limits, to the period of May last, leaving thereby, five months of his continued zeal and care, by which he has promoted many remarkable recoveries, and relieved a considerable number of exasperated cases. Our acquaintance with that gentleman's practice, enables us to confirm our opinion of the diversity of causes productive of mental derangement, in opposition to those who assign to it a uniform character and as totally independent from organic affection, thereby little, or not at all subject to medical investigation. We think it true, as Dr. Handy says, "that there is but little boast from any pharmaceutical course in the treatment of insanity;" but he has used medicines with advantage in bodily diseases supposed instrumental in exciting disorder of the mind. He adds also, "that religious terror arising from erroneous perceptions, is much more frequently the effect, than the cause of mental derangement." We are then in the error, when we ask what could have been the moral cause of insanity? instead of which, let the physician if he can, search and investigate the state of the system in the afflicted subject, and as far as human knowledge can reach its known laws and functions, he will find out one, more or less important, which being diseased, influences, consequently, the mental perceptions; beyond the science of physiology,

* After having been four or five years in possession of an annual grant of 10,000 dollars, by the legislature of the state; the governors of the Hospital have at last commenced, and have in great progression, another building, situated at seven miles from the city.

there remains a wide space of mysteries and undefined agencies, with which lunacy has been cotemporary; here we cannot resolve the problem, we may try various remedies in rotation and without effect; but their inefficacy cannot become an argument, much less a proof of an unic cause in the demolition of reason and of the mental perceptions. Hence, the celebrated Pinel, wondering at the numerous dissections of the brain of maniacs, which he found unaltered in its natural condition, exclaimed, that there were many more causes of insanity in the *belly*, than in the *cerebrum*. Doct. Handy rejects as much as possible all expedients of violence and personal restraint, even in the management of ferocious mania. His mode is perfectly mild, and therefore is the best. By frequent conversation, he tests the power of mental perceptions, elicits probably some light and sparks from reason, if it is not all demolished, and thereby enables himself to class his lunatics, according to their degree of insanity. He proposes different wards for those that are bodily diseased, an abundant supply of water for the purposes of bathing; mentions the beneficial effect of amusement, occupation, employment, and of religious worship. The diet of the lunatics is often that of a large community, where economy submits their stomach to coarse or very improper food; from the same motives which make it so important to deprive lunatics, absolutely of any stimulant liquor or beverage, he desires to compose their diet in a great proportion of succulent vegetables, than which, we remark, none is, perhaps, more sparingly used in the New-York asylum.

May we hope that for the satifaction of his fellow-citizens, and for the instruction of his medical brethren, Dr. Handy will not drop the wholesome task of reporting at least once yearly.

MEDICAL SOCIETIES.

State of New-York.

Officers of the State Medical Society, elected the 4th of February, 1818, at the Capitol, City of Albany.

Dr. J. Stearns, *of Albany, President;* Dr. Henry Mitchell, *of Chenango, Vice-President;* Dr. Peter Wendell, *of Albany, Secretary;* Dr. Charles D. Townsend, *of Albany, Treasurer.*

Censors—Dr. David Hosack, *of New York;* Dr. Samuel L. Mitchill, *of New-York;* Dr. Westel Willoughby, *of Herkimer;* Dr. T. Romeyn Beck, *of Albany;* Dr. John Watts, *of New-York.*

Committee of Correspondence—Dr. Amasa Trowbridge, *of Jefferson;* Dr. William Patrick, *of Saratoga;* Dr. A. Davis, *of Orange;* Dr. Thomas Fuller, *of Otsego;* Dr. Joshua Lee, *of Ontario;* Dr. P. C. Adams, *of Greene;* Dr. B. White, *of Dutchess.*

County and City of New-York.

At an Anniversary Meeting of the Medical Society of the City of New York, held on the 6th July, the following gentlemen were chosen officers for the current year.

John R. B. Rodgers, M. D. *President;* Wright Post, M. D. *Vice President;* Dr. Van Solingen, *Treasurer;* Gerardus C. Cooper, M. D. *Secretary;* Felix Pascalis, M. D. *Delegate;* John Watts, M. D. Thomas Cock, M. D. Lyman Spalding, M. D. Dr. John Neilson, and Alexander H. Stevens, M. D. *Censors.*

State of Maryland.

Medical and Chirurgical Faculty of Maryland.

The annual convention of the Medical and Chirurgical Faculty of Maryland was held in Baltimore on the first day of the sixth month, 1818.

The following physicians were chosen officers of the Faculty for the ensuing year:

Ennalls Martin, M. D. *of Easton, President;* Patrick Macaulay, M. D. *Corresponding Secretary;* Ezra Gillingham, M. D. *Recording Secretary;* William W. Handy, M. D. *Treasurer.*

BOARD OF EXAMINERS, FOR THE WESTERN SHORE OF MARYLAND.

Drs. Elisha De Butts, William Gibson, Ashton Alexander, Thomas E. Bond, P. K. Rogers, Wm. W. Flandy, Maxwell M'Dowell.

FOR THE EASTERN SHORE OF MARYLAND.

Drs. Robert Stevens, Robert Goldsborough, Tristram Thomas, Robert Moore. Theodore Denny.

Additional Censors—Drs. William Gibson, Thomas E. Bond, Anderson Warfield, Nathaniel Potter, P. K. Rogers, John Revere, Wm. Donaldson, Samuel Martin, George Roberts.

STATE OF VERMONT.

At an annual meeting of the Vermont Medical Society, October, 1817, of all the Delegates, composing the State Society, at Montpellier, the following gentlemen were elected.

Ebenezer Huntington, *President;* Joseph A. Gallup, *Vice-President;* Calvin Deming, *Secretary;* Edward Lamb, *Treasurer.*

Censors—Charles Hall, Thomas Winslow, Frederick Ford, jr. Robert Paddock, Silas Bowen, Abel Aylesworth, John Pomeroy, Joel Green, and Melvin Barnes, jr.

Erastus Torry, *Corresponding Secretary.*

LOUISIANA.

By an act of the Legislature of Louisiana, February, 1818, a Medical Society was incorporated in New-Orleans, and composed of her most respectable professional men, in conjunction with eminent physicians from Europe.

ELECTION FOR THE PRESENT YEAR.

Messrs. *Trabuc, *Président;* *Gros, *Vice-Président;* *Taillefer, *Secrétaire;* *Gerardin, *Secrétaire-adjoint;* *Conant, *Trésorier;* Grandchamps, *Archiviste.*

Members—Messrs. *Dow, *Chevalier, *St. Medart, *Martin, *Miltenberger, *Lemonier, ainé, *Lemonier, jeune, *Deveze, *Marshall, *Dupuy, *Pecquet, Chabert, Guigue, Begis, Dufilho, Jambu, Nee, Lacroix, Soulé, Groslé, Lambert.

* Founders of the Society.

COLLEGE OF PHYSICIANS AND SURGEONS.

The College opens annually, on the first Monday in November, and the several courses begin, successively, that week, after the Introductory Lectures of the respective Professors. The session closes the last day of February.

Lectures in the Forenoon.

Theory and Practice of Physic, by Dr. Hosack, from nine to ten o'clock, *daily*.

Principles and Practice of Surgery, by Dr. Mott, from ten to eleven, *daily*.

Anatomy, Physiology, and Surgery, by Dr. Post, from eleven to twelve, *daily*.

Lectures in the Afternoon.

Natural Philosophy, by Dr. De Witt.

Natural History, including Mineralogy, Botany, and Zoology, by Dr. Mitchill, from one to two, *daily*.

Chemistry and Materia Medica, by Dr. Macneven, from five to six, *daily*

Obstetrics, and the Diseases of Women and Children, by Dr. Hosack, from four to five, on Mondays and Thursdays.

Clinical Practice of Medicine, by Dr. Hamersley, from four to five, on Wednesdays and Saturdays.

Institues of Medicine, and Forensic Medicine, by Dr. Francis, from four to five, on Tuesdays and Fridays.

It is expected that a candidate for graduation shall have attained the age of 21 years.

APPENDIX.

Of the Ancient Remedial use *of* Mercury, *for* Fevers *and* acute diseases, *in* North-America.

IN our review of the second volume of the researches on the plague, in this 4th number, we have had occasion to promise some documents respecting the priority of claim due to the American practitioners, for admitting mercurial preparations in the treatment of acute and malignant diseases. It may save trouble to many European writers, who have lately been contending for the honour of the discovery. The document exists in our work, and should be familiar to our readers; in a periodical work, however, of 21 years existence, the original editions of which are exhausted, the alluded testimonial information may not be within the reach of every body. For the sake of brevity, we will then only give a sketch or abridgment of it, as it exists in our first volume of the Medical Repository, old series, page 500—in a letter from Doct. Edward A. Holyoke, M. D. of Salem, Mass. dated December, 1797, in direct answer to a question put to him, respecting the origin of the remedy. He relates there, that from hearsay, a disciple of the celebrated Pitcairn, had introduced mercury in Boston 60 or 70 years ago. That the practice had afterwards been much promoted there by the writings of Doct. Cheyne.

That in a formidable epidemic among the children, called the *throat distemper*, in the year 1734, its use and virtue had been attended with the most happy effects. The preparations used were *Turpethum Minerale* and *Calomel*. He speaks of a dose of 30 grains of Calomel, which was given by mistake, to a young woman very ill with that disease, and who most promptly recovered.

That in the year 1752, mercury was adopted in all acute and inflammatory diseases; it went afterwards into disuse from the want of encouragement by European writers, until it was lately taken up again and recommended by some of them.

That in the 7th volume of *Medical Facts*, entitled, *Practical Observations on the Treatment of Acute Diseases*, there is a paper of Doct. Wright, bestowing the greatest encomium to the exhibition of mercury in acute diseases, to its efficacy and safety, which must convince every practitioner.

That Doct. Holyoke himself has prescribed this medicine since the year 1751, never doubting of its good effects in any acute and epidemic disease.

The rest of the letter contains practical exceptions and rules, and likewise, wholesome precepts for the choice of preparations and mode of exhibition; "wherefore, small doses of Calomel with Cons. Ros. or with Honey, have been found to be powerfully expectorant, where the lungs have been greatly obstructed and loaded with viscid phlegm," &c.

A TRANSLATION *from the Latin of the celebrated* J. MAR. LANCISI'S *Work, de Noxiis Paludum Effluviis. By* SAM. L. MITCHILL, M. D.

Concluded from p. 332.

THE SECOND PART OF THE FIRST BOOK.

Of Remedies against Marshy Effluvia in general.

CHAPTER I.

MARSHES ought to be dried with the intention of securing fertility to the soil and salubrity to the air; but more especially for the purpose of sharpening and brightening the understanding of the inhabitants.

I. Although all marshes may be drained by nature or by the powers of art, there are nevertheless some which, partly from the immense extent of their banks, and partly from their greater depth than the level of the neighbouring river or sea, discourage all the industry and skill of artists, and exhaust the wealth of princes, if not in undertaking and completing such works, at least of keeping them in repair. Of this kind are the Pontine marshes in the Ecclesiastical State, the draining of which was of old happily undertaken by the most invincible Roman Emperors. Whereupon Horace, in his *Art of Poetry*, writes:

The marsh was long barren and capable of being navigated; but now it supports cities and receives the plough.

A like undertaking was made in latter times, by Pope Sixtus the Fifth. But notwithstanding the incessant skill and labour that was necessary to keep up the works, (a subject treated at large, by Benedict Castelli, in his Italian

Treatise about it,) there was nevertheless a constant regurgitation from the channels of the adjoining rivers into this depression of earth, and converting it into a marsh that it is almost impossible to dry up. But wherever ponds and marshes can be let out, it ought to be done, for the two-fold purpose of increasing the stock of provisions, and of remedying the unwholsomeness of the surrounding atmosphere.

II. The public is interested in restoring to fertility the soil which had long remained an unproductive marsh. For the stratum left bare by the disappearance of the waters, is preferable to most others, for its aptness to promote the vegetation of plants: whence the Greek proverb, "*marshes are the best bargains.*" Princes have been known, not merely to commend, but to exempt from taxes the persons who drained marshes to dryness; as Cujaceius has remarked upon the Code of Justinian. For, since such spots are altogether barren and foul, they ought not, in case of being reclaimed and fertilized at private cost, to be escheated to the treasury, nor granted anew by the sovereign, nor immediately subjected to taxation. And this immunity seems to be merited by him who has drained, ploughed, and brought into cultivation a marshy and useless tract. It would be easy to cite many precepts and examples to evince the fertility of exhausted marshes. But one illustration may suffice for the whole. It is that related by Suetonius, in his Life of Augustus; where, after the victory over Mark Anthony and Cleopatra, Egypt was found to be difficult of approach on account of the inundation of the Nile, and almost overspread with marshes; to remedy which, he ordered the soldiers to open the ditches obstructed with mud, and thereby augmented the crop of provisions for the city.

III. But the drying of marshes is by far the most effectual method of removing fundamentally that taint of the air, which, as has been shown in almost every chapter of the preceding part of this Book, necessarily arises from sluggish and corrupted waters, under the influence of heat, in the form of venomous organic and inorganic bodies. For, as soon as the water is removed, the menstruum, as the chemists call it, is taken away, by which the foreign salts and other particles are extracted from the earth and spirit, and in which mischievous insects are nourished and cherished. By which means the air that was the most heavy and pestilential around the marshes, becomes pure and healthy, and capable of being breathed thereafter, by men, with security and comfort. And here I cannot avoid passing over the many and weighty cases in point, which history affords, to adduce the clear ex-

ample noted by the celebrated Peter Salius, although it is repeated in another place, on the drying of ditches. For those which smelled very bad in the vicinity of the walls of his residence were no sooner dried up, *than the inhabitants were most happily freed from the pestilential fevers, by which they had many years been harrassed about the close of the summer.*

IV. By this operation the minds of the people are improved as well as the soil and the atmosphere. For the portion of the divinity which illuminates the mind of man, produces but gross and cloudy spirits in those persons who dwell in a thick, foggy and marshy air. Objects are therefore obscurely seen, and after the manner of visible things through a darkened glass; the ideas are dull, perception is slow, and the mind becomes careless and contracted. Hence the understanding cannot but be dull, impure, rude and obscure. Hence the Bœotians, who dwelt in a thicker air, were reckoned so stupid and dull, that *Bœotian wit* became a proverb. For this reason, Horace, in satirizing the ignorance of Alexander for being very liberal to Cherilus, an exceedingly poor poet, observes, (Epistol. Lib. 2. Ep. 2.) Quod si—judicium subtile, &c.

He thus ascribes Bœotian dulness, to the thickness of the air, and this has been shewn to be in no way repugnant to physilogical reasoning. And where, on the other hand, there is a pure, open and penetrating air, the understanding is vigorous and acute. Therefore, the divine Hippocrates, after he had found by experiment, *that wisdom was communicated to the brain, by the air, adds, that it prompts the brain to thought.* For when a person has drawn breath within him, it acts first upon the brain, and imparts to that organ the disposition to vigour, and to whatever of prudence or wisdom the individual possesses. Marsinelli, in his commentary on this text, properly subjoins, *the brain is, first of all, affected by healthy or unwholesome air.* And from this, it becomes a part of man's physical constitution to partake of the qualities of the climate in which they are born and brought up. Therefore, they who dwell near the marshes, soaking in a sluggish, heavy and vaporous atmosphere, commonly possess weak limbs and torpid minds. These persons resemble the Phasians, whom Hippocrates mentions, as living in the marshes, remote from other men; and therefore were of a pale complexion, weakly constitution, and of a slow and feminine understanding. If then the marshes should be dried up, the air would be restored to its native clearness and consistency, and these will render the understandings of the

inhabitants more strong, acute and enlarged, as Col. Rhodigen and Joseph Imperialis have explained.

V. Since, however, all marshes cannot be drained or dried in one and the same way, the succeeding chapter will contain a brief discussion of the matter, as far as it is important for physicians to be acquainted with it.

CHAPTER II.

Of the method of drying Marshes.

I. Although it is not now intended to write a treatise on hydrometry and hydrostatics, (which belongs to engineers and architects,) it is nevertheless proper to point out those things on the draining of marshes which it would be reproachful for well educated physicians not to know. For no one can be a good counsellor, who is ignorant in matters of advice.

II. Nor is it designed in this place, to discourse concerning those marshes, which are small, formed from rain-water in hollows, have little depth, and contain but a small quantity of mud. These are usually dried up by the sun and wind, or they partly soak away into the earth. For these causes, there is nothing left to afford septic exhalations during summer. But the great object of another is, to promote the drying up by artificial means, of those marshes which are large and deep, and if small, are replete with filth, and which, on the approach of dog-days, do not only not become dry, but undergo a putrefactive fermentation, in which swarms of insects breed, and from which much noxious vapour exhales. And to these it is the more important to direct attention, because the draining of them is advantageous not to the bordering inhabitants only, but likewise to the people who dwell for some distance around.

III. The method of effecting this is neither uniform nor simple; for art and labour must be applied in different ways to remove the waters, according to the nature of the place, and the quantity of the fluid to be drained. Where marshes abound with stagnant moisture, and are situated above sloping ground, they can be drained with great ease, provided there is no interposition of public authority to forbid it. For ditches may be cut along the declivities to the neighbouring sea or river, and the whole body of water be drawn off. In this sense, the ancient fable of the seven headed hydra, is to be understood. For as J. Baptist Alberti rightly supposes, this monster was nothing more than the marsh of Lerna,

which could only be overcome by drains, cut here and there, and by fire and steel.

IV. It is not enough to carry off the marshy water, the nearest way to the river or the sea. The engineer must take care that the water does not collect again, an accident of frequent occurrence. To form great marshes, there must be either a constant flow of water from without, or a continual supply from springs within; therefore, care must be taken, that the derivative water does not run in again, nor the marsh be replenished from its innate sources. The two sorts of water must be kept apart by leading away the descending water along the side-hills, through furrows and drains for the purpose; or if the nature of the place does not admit this, let the marsh be banked and under-drained. In the performance of which, it must be remembered that every obstacle to the free discharge of the marsh water, through the newly opened ditches, ought to be carefully removed. Of this kind are the branches of trees, reeds, rushes, and their roots, collections of filth, mill-dams, fishing wears, and many other things, which prevent the running out of as much water as runs into the bed of the marsh.

V. But when it shall be ascertained by a good surveyor (for there are many pretenders to this business) that all the surrounding places, and even the shore itself, are somewhat higher than the bottom of the marsh, then the water must be raised, if possible, by hydraulic machines, and the whole marsh evacuated, or the hollow must be filled up with earth.

VI. In respect to the exhaustion of lakes by machines for raising water, and turning it out to run off through declivous and open ditches, many writers have discussed the subject. And since the days of Archimedes, the foremost perhaps among the moderns who have treated of this matter, is the famous physician, Joseph Ceredi of Placentia, who published a book in the Italian tongue, *on the means of raising water from the greatest depths*. He therein illustrates his description of the mode of performing this work, by an appropriate figure; but observes that his machine will be quite useless in all places where the quantity of water running into the marsh is greater than that which can be taken up and carried off by his screw. On this account it is, that all the pumps that have been tried in the Cœlian valley have failed. It is however by machines of this sort set in motion by the wind, that the marshes of Holland are kept clear, though they lie lower than the level of the sea. It is much to be regretted that the Italians do not imitate their example, when an easy restoration of wholesomeness to the air, and

an extensive acquisition of fertile land would be the certain consequences.

VII. But sometimes, ponds filled by water from the hidden veins of the banks or bottom, are best dried by filling up. By this operation it happens that the hollow is filled as high by the earth which is carried in, as the surrounding land which feeds the springs; the water of course can ascend no higher, and the spot becomes dry.

VIII. Earth is conveyed to such places in two ways; that is, by carting, or by alluvion; the former takes place only where the collected water is of moderate extent and depth, but cannot be carried off by syphods, screws, pumps, or open canals. There was a verification of this matter about six years ago at Rome, in the Cœlimontane valley, near the Lateran Palace, where you pass along the walls to the Latin gates. It had happened that many large buildings had been constructed of bricks; and that for the erection of new houses in the city, stones were broken up from the old walls. The avarice of the proprietor too had been such, that too great a quantity of stones had been dug out. The earth had been opened for more than an hundred and twenty paces, and filled with moisture from the old sunken aqueducts; the cavity was filled a little before the summer solstice, and converted into a marsh; at mid-summer, it swarmed with musquetoes, worms, frogs and toads, and exhaled a disagreeable smell, which annoyed the neighbouring inhabitants; hence ill-conditioned fevers were observed in the adjoining parishes, and in the hospital of Saint John. Immediately I intreated his Holiness, in the most earnest manner, to take counsel without delay, and stay the progress of the epidemic; whereupon an assembly being held at the house of the distinguished Augustini, the commissioner of the roads, I among the rest delivered my opinion; and it was concluded to try whether the water could not be raised from the marsh by two pumps, and thrown over the walls into the Mariana; but on making the attempt, it was soon found that more water ran in from the aqueducts than the pumps could clear. It was then instantly determined to fill up the place, as the most likely plan that could be adopted; earth was carried, with considerable expense, from a neighbouring hill into that hollow, until its surface was levelled, and the marsh disappeared. By this operation, which turned out to be as prosperous, and it was notorious, a sensible alteration for the better took place among the sickly inhabitants even during the heats of summer; on which account I feel a strong desire, yea, even an ardent zeal, to perform all that is in my

power for the glory of the Pope, when it is combined with the happiness of his subjects.

IX. But marshes extending over plains to a great extent and considerable depth, cannot be turned to dry land by manual labour. The wealth of princes and the labour of their subjects are unequal to their accomplishment. In such cases the work is to be attempted by alluvion. This is done by turning into such places the turbid water of a neighbouring stream. This, escaping from a confined bed into a wide expanse, loses gradually its velocity and deposits the heavier particles of earth which it brought along. These new-formed strata deposited by the water are followed by others, until in process of time the bottom rises above the surface. And this change takes place the more quickly, if the pure and limpid water should by any means be drained off.

X. Pisaro furnishes a beautiful instance of a marsh filled up by alluvion. A stream taken from the river Isaurus, was carried through a fresh cut canal to a lagoon near the shore, and in a great measure filled and levelled it after all other methods had failed.

XI. Should any person desire to gain further information upon this subject, let him consult the writings of Aristotle, Joseph Blancanus, Peter Castelli, Cabeus, Gulielmini, and many others, who have given ample directions for turning rivers into marshy grounds, in such a manner that, as Cabeus says, a fertile soil will not be converted into a barren land.

CHAPTER III.

At what times marshes ought to be dried, and what ought to be done when they are dried.

I. That the safety of the people who dwell near marshes may be consulted while the process of exsiccation is going on, the season of the year ought to be taken into consideration wherein the waters are to be discharged into the river or sea. For after the lagoons and ponds are exhausted, a muddy bottom is always uncovered and laid bare, abounding in unclean worms and their spawn, decaying vegetables and other slimy bodies, and emitting a disagreeable odour. On this account care must be taken, that the draining be not done on the approach of summer; for then the worst kind of fermentation takes place, and deleterious particles partly escape and partly are forced into the atmosphere; therefore

the undertaking would be no less daring than dangerous, to empty these places at the termination of spring or the commencement of summer, since the exhalations from the remaining filth would be more noxious than from the marsh itself. We learn this from antiquity, which, for the most part, incloses the sweetest kernels of knowledge within the rinds of fables. In remote days, a serpent was imagined to be the occupant of the marshes, and called *hydrus;* and when the water failed in the course of the summer, and he was obliged to live in the dried fen, he was called *Chersydrus,* (meaning the corrupted and stinking mud,) at which season he was influenced by a heat equal to the more southern climates and grew therefore much more noxious, mischievous and virulent. Hence Virgil sings, in his third Georgic, as follows:

"Postquam exhausta palus," &c. fine verses—and deserves the place which Marsigli Cagnati, in his treatise on the overflowing of the Tiber, has ascribed to Antipater the stoic; *that the exhalations of a moist soil, winding and revolving upwards, and after they were warm rolling downwards, like a poisonous serpent, corrupt every thing by their putrefactive power.* Nor was Heraclitus of Tarentum in the wrong, when, in his Allegories of Homer, he called the rays of the sun the arrows of Apollo, inasmuch as with the aid of moisture they engender corruption.

II. Therefore the most convenient time of drawing off the waters from marshes, is rarely the beginning, and mostly the end of winter. About the first of March the rains of winter have almost ceased, the snows are melted, the earth is in a condition to be easily ditched, and the remainder of spring season is at hand. In the progress of this mild season every thing can be done with the utmost safety, that is necessary to subdue, turn, sow, or in any way correct the denuded mud, before the summer advances. Indeed the rule is to let out the marshy waters into the adjoining streams or rivers towards the close of winter, as has been happily experienced, as well in the swamps near Civita Vecchia, the plains of the Royal Baths and Ferentini, and the ponds of Pisaro; each of which will be treated of in its proper place. It is here, however, to be observed, that the ditches of citadels and plains, as well as the sinks of cities, ought to be cleansed frequently in the beginning or through the course of the winter, that a free passage may be made for the water to run off.

III. What ought to be done after the marsh is emptied, to prevent the noxious vapours from ascending from the

mud, can only be determined by examining the peculiarity of the places, the extent of the marshes, and their nearness or distance from cities and towns. For if a muddy and putrid bottom remains in the sinks and ditches, whether of cities, castles, roads or meadows, and there should be a doubt respecting the heat of the passing season, it will be best to make an attempt for a few days, to moderate the temperature by running water, in the way that will be pointed out in the ensuing chapter.

IV. That filth which is the cause of so much mischief ought to be entirely removed with all speed from the sinks of cities and the ditches of castles, and thrown into the running stream of the nearest river, or buried deep in the earth.

V. But if the marsh is large and situated far from a city, the business may be managed in another way, and probably with less expense. It may even be sometimes done with great profit, by sowing the seeds of grapes and other plants; so that the matter which used to exhale into the atmosphere, and annoy the neighbouring people, may thereafter pass through the tubes of the roots and stems, and receiving life and undergoing a change thereby, be wholly devested of the power to do harm. Where a moderately dry soil is capable of receiving the spade and plough, it is immediately to be turned up and seeded; and it is wonderful how much the public plenty and private wealth are promoted thereby.

VI. The directions given to purify marshes, ponds, puddles, ditches, and sinks, are to be applied for the cleansing of subterraneous holes that are found with the mud and filth left by alluvions. They apply also to cisterns, wells, vaults, lakes, and other places abounding with offensive substances; these ought not, however, to be attempted but during the winter or the night, lest corrupt and dangerous exhalations should be diffused far and wide by the heat, and entering the open windows of houses, assail the inhabitants. And these things are worthy of being known not only to careful physicians, but likewise to every good citizen.

CHAPTER IV.

I. When a marsh cannot be dried, but although drained, leaves the muddy bottom during the summer, it may be replenished and tempered by pure water from the hills.

II. It often happens that marshes cannot be drained, during the summer, or if they are drained, they cannot be

cleansed from their stinking filth. In such cases it is desirable to introduce fresh and steady running water for the purpose of washing and diluting the foul and corrupted mass. For where a soft, rotten and ill-conditioned soil is put into fermentative action, it ought first of all to be diluted with copious supplies of fresh water running through, to mitigate the commotion. The acrid and corrupted particles are disarmed by the quantity and motion of the water admitted, and being gradually carried off by a well adapted outlet, run away. By this means, their hurtful tendency is exceedingly lessened and blunted; this has been confirmed by a most lucid experiment, made under my own eyes, in the ditch of Hadrian's mole. In the year 1709, this was in a very foul condition from marshy mud, that could not be immediately removed; but carrying water through it from the vatican gardens, it was so mitigated as to do no harm to the neighbours. In my Dissertation on the Roman climate, the mode of effecting this is more circumstantially told.

III. Nor is the discovery new or my own, to introduce pure water from the hills to correct the malignity of marshes. We read in Strabo, that in Egypt, the marshes near Alexandria lost all their mischief whenever they were overflowed and diluted by the Nile. We have also the strong testimony of the Selinentii, whom the perspicacious Empedocles delivered from the pestilence of a sluggish stream creeping through their settlement, by directing two neighbouring streams to be turned into the Lazyore. The stream of the latter was rendered more brisk by this operation, the channel was cleansed, and as Laertius relates, the waters becoming fresh and sweet, the plague ceased. Peter Salius Diversus relates, in his Tract upon Pestilential Fevers, that he had pursued the same course: *If pestilential fevers, says he, proceed from stagnant waters, the first thing to be done is to introduce a running stream; or else to dry them up altogether, as is practised in my country, where the water stagnated in the public canals round about, and undergoing corruption, there excited, towards the end of summer and during the autumn of every year, violent pestilential fevers.*

CHAPTER V.

A marshy state of air is freed from the malignity of its exhalations by kindling fires.

I. Fire has a very powerful effect in correcting bad qualities of the air, (although Marsigli Cagnati does not appear much to commend it,) particularly if they succeed a great fall of water; for both kinds of atmospheric miasmata, the animated and inanimate, are dispersed by it, and conveyed to great distances.

II. Nor is the true reason and operation of this a mystery; for the noxious bodies are propelled to the fire in a continual stream with the air. This is caused by the smaller resistance made by the surrounding substances. They undergo combustion, and are changed partly to ashes and partly to smoke. By this means, the air which entered the fire, thick and impure, comes out rarified and clean. Wind, indeed, is the constant companion of fire, although at first the air on every side was unmoved and calm. Lord Verulam, in his history of the wind, relates something to this point; to wit, "*When Gascony was subjected to the English crown, a petition was presented to the king, by his subjects of Burdegallia and its vicinity, praying that the burning of heather might be prevented in Sussex and Hampshire, because it produced so much wind.*"

III. They who observe light chimneys or open fires, plainly perceive, that the air enters in a current through the lower part of the opening in nearly a horizontal direction, and then turning upward, it bursts out with equal velocity in the form of smoke or flame. It therefore can scarcely be doubted, that the gross and noxious air is powerfully resolved and purified by the fire, particularly if it is kindled by resinous and aromatic woods. Pliny has, on this account, written correctly, "*that fires have a medicinal operation against the pestilence which is induced by the obscuration of the sun*, (by previous rains, clouds and excessive moisture.) *It is certainly much bettered by the action of fire. Empedocles and Hippocrates have demonstrated this in various places.* Galen has related the same, from Hippocrates. What Amatus Lusitanus has written on this subject, may also be consulted. But what need is there of ancient testimony and foreign witnesses, when our own time supplies plenty of examples in our own country? In the city of Rome, the arches constructed for burning bricks, were beyond the gate called *Cavalleggieri*, in

a low, damp, and naturally unhealthy place; nevertheless, its healthiness is steadily preserved by the flaming fuel burning there. For fire is the greatest destroyer of all monsters, as especially of marshy air; insomuch that Hercules was formerly ranked among the gods, because, with fire he overcame the water-serpent, that is to say, a marshy soil. The true reason of this was known and expressed by Virgil, where he treats, in his Georgics, of burning the fields.

Either every bad quality is corrected in them by fire, or the useless moisture is evaporated.

CHAPTER VI.

On the use of groves generally, and of woods, particularly where a marsh cannot be drained.

I. It is of great moment to take care of the people and provide for their health; for without a regard to these two objects, a prince possesses but an empty title. Therefore, according to the circumstances of the marshy region, we must struggle against nature when we despair of success in drying it; that is, we must employ all possible methods of keeping off and turning aside unwholesome breezes, by planting groves of trees. And by these much mischief is warded off from the neighbouring inhabitants.

II. Woods and groves have been employed for the natural and civil conveniences of man, for the rearing of various sorts of animals, and for cherishing and promoting religious thoughts and exercises in their solitudes. They are likewise very serviceable in preserving the healthiness of the climate against the noxious exhalations of marshes and currents of air. It nevertheless sometimes happens, that we inconsiderately cut them down, or make them the hiding places of criminals; or, by placing them in the way of healthy winds, or of draining waters, they become the causes and sources of general sickness. Thus there is nothing, however conducive it might be to the great interests of virtue, life, and health, which may not be perverted by bad management to mischievous and ruinous purposes. Besides, the wisest princes, although they have cut down and supplanted them whenever the atmosphere or morality was endangered by them; yet they have generally taken care to plant and preserve groves and woods for economical purposes, and more especially for guarding against marshy exhalations; as Cice-

ro, quoting the law of the twelve tables, relates, that the Roman fathers of old commanded, *that groves should be propagated in the fields.*

III. It would be easy to produce instances of groves cut down, because abandoned men resorted to them for the purpose of committing crimes. It may, however, be sufficient to state, how we read in holy writ, that groves were cut down because the worshippers of idols performed within them their impious rites and horrible deeds. Wherefore, in Deuteronomy, chap. xii. ver. 3. *The Lord commanded the altars of the Gentiles to be overturned, and their images to be broken; their groves likewise to be burned with fire, and their idols to be broken to pieces.* In like manner the Lord ordered Gideon, in Judges, chap. vi. ver. 25. *Take away the bull of thy father, and root up the grove which is round about the altar; and thou shalt build an altar to the Lord thy God:* and further on, *they saw the altar of Baal destroyed, and the grove cut down.*

IV. On the other hand, the most prudent rulers of other nations, when reflecting on the manifold uses of woods, have considered them as possessing great influence in keeping the minds of men engaged in their duty, in preserving a sense of religion, and in cherishing the fear of the gods. Hence they consecrated groves to almost all the deities, and impressed the minds of the people with an opinion of their inviolability. This idea was so prevalent, that certain nymphs were believed to be related to the oaks and other trees, to grow up as they grew, and to die when they perished. These were called by the Greeks Hamadryads. The fable of Erysichton is well known, who, because he violated an oak and nymph sacred to Ceres, was punished with insatiable thirst. Dryopes too was changed into a tree, because she cropped flowers from the lotus; whence she gave advice to her son, saying *that he should not pluck blossoms from trees, but should consider every shrub as the body of a goddess.*

V. From the same source has proceeded the vulgar opinion, that fountains and groves were occupied by rural and aquatic deities. On this account it was, that they entered such groves with a profound religious awe, and were afraid to disturb the streams and rivulets; an offence which could not be committed with impunity, without public inconvenience. Hence, on the day of the Palitii the Roman shepherds performed certain solemn ceremonies, and confessing their transgressions, entreated the goddess Pales to be propitious to them and to pardon their crimes; as related in the Fasti of Ovid. lib. 4.

VI. From the inscriptions of Groves, we know that they all had their priests. At Perusia there is the following:

C. Betuo C. F.
Sacerdoti III. Lucorum Pr.
Umbrico.

VII. Moreover, it can be understood from Suetonius, in his lives of the Cæsars, and from Virgil, in his Bucolics, that the care of the woods was committed to the consuls.

"*If we sing of the woods, let them be such as are worthy of the consul.*"

Whence it appears that this most excellent poet refers to the ancient custom of putting the woods and hills under the care of the consuls. In like manner, we are told by Gruter, of the *grove of Æsculapius*; whence we cannot doubt, that at a remote period groves were planted to guard against the noxious taint of the atmosphere, and for that reason it was reckoned criminal to cut them down. This at least is the opinion of the Roman writer on the grove of Mephitis, near the Patrician Village, at the foot of the exquiliæ.

VII. Besides, the solicitude with which groves were anciently protected from being cut down or overturned, their too luxuriant branches and leaves, which intercepted the rays of the sun, were studiously preserved from violation. And it was deemed sacrilegious for any person to make such an attempt, unless he had first made a sacrifice to the presiding god or goddess. Nor does it move my laughter, (as perhaps it may that of some who have but superficially studied the customs of the ancients,) that M. Cato, in his book on rural affairs, should propose the old Roman method of proceeding, to lop off the overgrowth of a grove; *make an offering of a hog*, says he, *then add these words: may the god or goddess, to whom this place is sacred, permit me to make expiation by a hog, for invading the luxuriance of this grove. If allowed, I pledge myself that whether it be done by my own hand, or by that of another acting under my command,* IT SHALL BE PERFORMED AS IT OUGHT TO BE. *On this account I offer sincere prayer, while I sacrifice this swine to thee, that thou mayest be propitious to me, my house, my family, and my children; and for the same reason, conciliate thy favour by offering up this swine.* For the most sagacious legislators of antiquity have decided, that if any one had an inclination to incroach upon a grove, he ought not to attempt it, but in the fear of the gods; that is, he should perform it as it ought to be, and not carry the trimming to excess.

IX. One thing ought not pass in silence, and that is, the document for the preservation of groves, which is to be seen in Roph. Fabretti's collection of inscriptions. The remains of this piece of antiquity are still extant in the Archives of the Vatican Palace, and it is supposed to have been written about the time of Vespasian.

X. In the same place, is described a sacrifice, to purge away the sin committed by him, who attacks a grove with steel; there is a fragment of an inscription in Gruter, page 121, where a particular sacrifice is mentioned to have been made by Portius Priscus, in the consulship of Tusca and Dexter, *for having defaced the writing, and scratched the marble*, of a monument that had been erected in a grove. For even to that time it was forbidden to invade sacred woods, with an axe, hatchet, scythe, knife, or any other cutting instrument.

XI. And in truth, there are several facts, showing that pestilential mischiefs have been the consequences of the destruction of groves. It may be perhaps agreeable to those, who desire to understand certain abstruse passages in the ancient authors, that I should state an occurrence told by Angelus Politianus, in his remarks on the secular games, concerning a man named Valerius, from whom the Valerian family derived their name. *This man had a grove of very tall trees before his country house, which were struck with lightning and consumed. Soon after, two of his sons and a daughter, were seized with a violent and desperate pestilential disease. The father passionately addressed himself to his household gods, offered the lives of himself and his wife for the redemption of the children, when a voice was instantly heard, proceeding from the ruined grove, assuring them that they should be safe, if they would go to Tarentum on the Tiber, and there drink from the river itself, water heated at the fire place of Pluto and Proserpine*, &c. &c. By this we are doubtless, taught that the grove was sacred, and served as a barrier against the unhealthiness of the neighbouring marsh, or the noxiousness of the winds; but as soon as it was destroyed by fire, the city lost its protection. Therefore, not long after, the sons and daughter, on account of their tender ages, being liable to severe diseases, were seized with a pestilential distemper, and were not freed from it but by a change of air; and this we find almost always to be the case.

XII. As P Victorius observes, there is no need of our expatiating on the atrocious criminality which the ancients attached to the cutting down of a grove sacred to any of the Gods; all the books of the poets are full of it. We will

however adduce the testimony of Dio the historian, which may be useful, inasmuch as he writes, and with his usual accuracy, about Turcellius, of whom C. Copius makes mention in his letter to Cicero, describing him as the paymaster of the fleet, that on the preceding year, had been prepared in Bithynia by Tullius Cimber. This Turcellius was one of the assassins of Julius Cæsar, and when this calamity fell upon him in the island of Cos, it seemed to be advisedly brought about, or in other words, to have been wrought by the will of the Gods; for the fact was, *that not long before, he had there cut down a grove sacred to Æsculapius, for the purpose of equipping his fleet, and had actually constructed the ships of those materials.*

XIII. It may be sufficient to have thus offered a few considerations in general terms on the use of coppices and groves. We shall now descend to particulars, and demonstrate according to our plan, that woods are the great bulwarks and shields against the pernicious influence of winds and marshy exhalations.

XIV. But while I was engaged in these pursuits, and revolving in my mind every thing that would explain, adorn, or strengthen the narrative, it fortunately happened that Michael Angelo of Cajetas, Duke of Lermineta, presented a petition to the Pope, praying that he might be permitted to cut down the woods in the Pontine marshes, which stood in the way of the southern and African winds. On this occasion, it came to pass that by a solemn mandate of the holy father, I then executed on the spur of public security, what I now undertake of my own free will and accord.

XV. And since, in performing that task, I have offered all I know on the subject, I shall, to prevent repetition, lay those memoirs before my readers, together with the decree of his Holiness therein.

[Here follows in the original the author's advice on cutting down by parts the woods of Cisterna and Sermineta; to which are added a variety of controversial papers on that subject, and the decree of the Pope therein. These the translator omits, as being of a nature too local and temporary to render their version necessary.]

CHAPTER VII.

What the persons living in the neighbourhood of marshes ought to do for the prevention of injury from noxious effluvia.

I. In the twentieth chapter of the preceding part of this work it was shown, that by breathing an healthy air, all our fluids underwent a bland pressure, mixture and division, and were rendered more subtil and light; the solid parts thence acquired their vigour and soundness; while from an unhealthy atmosphere, particularly that caused by marshy effluvia, all the fluids, and indeed the whole man, fell to decay.' It is now our happiness to show how these mischiefs may be prevented by a proper regimen; and how every one who is obliged to live in the vicinity of pools and lakes, may secure himself from their mischievous exhalations, as far as possible. For Varro, in his work on rural affairs, properly observes, *that the more serious ills which arise from the unhealthiness of the atmosphere and of the soil may be alleviated by human diligence.*

II. I pass over that most safe of all preventive means, which was first recommended by Hippocrates, then by Celsus, afterwards approved by Galen, and since jocosely applauded by Capivaccio and others, for the benefit of those who wish to be secured and protected from the pestilential disease produced by a distemperature of the atmosphere. This is immediate flight from the place where the pestilence prevails. This prescription has by some of the moderns been called *pilulæ de tribus*, because it is composed of the three adverbs, *quick*, *long* and *slow;* which have been softened and versified by Vincent Alzar de Cruce thus:

Cede cito, longinquus abi, serusque reverte.
Retire early, move far off, and return late.

III. While marshy places are under consideration, the proceeding of M. Hostilius is well worthy of consideration, *who when the Salapians of the Lake were annually visited by the plague, freed them from it, by removing them four miles from the place.* But I pass over these things; for I am at present not addressing myself as an adviser to new comers from distant places; their care ought certainly to be, not to come into marshy places during summer and autumn, or if they come, to tarry the shortest possible time, and by no means to go to sleep. But I offer my friendly counsel to

those who, whether natives of unhealthy regions, or from their situation and condition dwell there, and cannot remove without changing for the worse, incurring reproach, or deserting the public service; and who must therefore remain within this loaded atmosphere by means of moderation and abstinence.

III. I recommend therefore, in the first place that both the native and the stranger, when so circumstanced as to be unable to remove far from the marshes, should often change his residence in the town or village of his residence, or if he remains in the same house, frequently to change his chamber, so that he may imbibe the noxious exhalations as little as possible. Particular care ought to be taken, that neither the door of the house, nor window of the chamber, should have an aspect toward the marshes. Varro, following Hippocrates, has left an excellent argument in favour of the necessity and value of this precaution, *for being at Corcyra, while an army and fleet were there, and all the houses were filled with the sick and the dead, he made new windows on the opposite side of the house, and admitted the north wind, shut up the pestilential light on the other side, and changed the door, by which, and other attentions of similar nature, he carried his companions and his family safe through. Something of the same kind was done by Empedocles, when he delivered his country from barrenness and pestilence, by closing up, as Plutarch relates, an opening in a mountain, through which the south wind used to blow upon the plains.*

V. We have had frequent experience of the wisdom of this advice; and have often enjoined it upon our friends when they went to the sea shore of Portia or Ostia, for the purpose of health or recreation, that they should not sleep in chambers fronting the southeast or south, but diligently seek for a northern exposure. Many of them, however, have been reduced by the warmth of climate, to take chambers with windows looking to the south. And such persons have often been seized with head ache and fever; nor is there any need of going further to explain how it is that the effluvia are more freely borne from the marshes, perpendicularly into the open windows of houses. They are so well known and understood, that it would be superfluous to discuss them at large. It must be obvious to every one, that exhalations from the middle of ponds are spread more quickly in right lines, and in greater quantity too, than in an oblique course, which divert and weaken them. An illustration of this may be taken from smoke issuing at a chimney-top, which while it rises strait, is dense and plainly visible;

but after it takes an oblique direction and is dispersed, through the atmosphere, is so attenuated and scattered, as to be no longer perceptible or mischievous.

VI. Further, to guard against these evils, resinous woods ought to be burned for fuel within doors. Public fires have been treated of already, in a former chapter. Odoriferous berries ought also to be burned; by these the air that is dense and contaminated with the eggs of insects, is by degrees expelled, rarified and made pure. Among the corrective materials, however, the most ancient is sulphur; for we read in the Odyssey of Homer, an author not unskilled in medicine, that Ulysses bids the old woman to bring fire and brimstone, to purge the house rendered foul by the stench of carcases. And Van Helmont, extols with the highest praises native sulphur, with pitch and decrepitated salt.

VII. The efficacy of sulphur to destroy the insects, by which the air of a close chamber is infected, may be learned from the experiments of Leeuwenhoeck; and besides, P. Salius, Diversus and P. Zacch. Lemnius, and others, recommend gunpowder to resolve and correct the atmosphere. Hence the firing of cannon in the morning has unsually been believed to dissipate and dispel the miasmata of the atmosphere.

VIII. The third means of prevention, consists in a good, but frugal diet. For the venom of the air rarely acts but upon bodies already prepared to receive it; and errors in diet, particularly prepare and predispose the body for its admission. Wherefore, those persons counteract the ordinary mischievous operation of the atmosphere, who take food that is easy of concoction, and moderate in quantity; and besides, as Celsus has remarked in his observations on pestilence, that on such occasions *food ought to be taken to a moderate amount only, lest crudities should be provoked. It is notorious, as A. Gellius reports, that Socrates by means of strict temperance, enjoyed good health the greater part of his life, and, what is exceedingly to our purpose, preserved himself entirely from the fury of that plague which, during the Peloponnesian war, depopulated the city of Athens.* Arrian confirms this account. Some years ago, about thirty of the Roman nobility, men and women, withdrew to the country near the mouths of the Tiber, about the beginning of January. There blew at that time an unexpected and violent wind from the south-east; in consequence of which, they were all seized with tertian fever, except Marcellus Sachetti, knight of the order of Jerusalem, and orator of his holiness, who

was cautious and prudent enough to take just so much food and drink as would recruit his strength and not exhaust it.

IX. And they who eat largely, and more especially they who live upon bad aliment, inhale certain destruction from the ambient air. They who live sparingly and heartily, have the odds more in their favour. The former always carry crudities in their *primæ viæ*, and their alimentary mass is always ready to feed the worms that are taken in, cherished and nourished, in proportion to the quantity of food swallowed. In gluttons, too, the vessels filled with fluids give less room for the circulation of the blood and lymph through the whole body, and therefore it easily happens, that their resistance to the sensible and insensible secretions is increased by the slightest causes. And this is carried so far as to intercept the passage of the pure ether of the atmosphere through the lungs into the blood, and its transmission through the *foramina* of the skull to the brain.

X With the use of food must be considered certain acidulous and subaustere condiments; such as the juices and conserves of pomegranates, quinces, oranges, lemons and wood-sorrel. These seasonably mixed with the aliment have a powerful tendency to compose and moderate the morbid fervour, to which the contents of the stomach are prone in the summer time. They also arrest the malignant particles, which would otherwise be absorbed through the lacteals and enter the blood; but these being of an urinous and cadaverous nature, combine with the acid volatiles, and pass by stool They act, too, by gently constringing the orifices of the lacteals, so that they do not admit the noxious particles faster than by the act of fermentation, they can be well mixed and incorporated with the aliment. Hence there are authors who, adhering to the opinion of Avicenna, recommend vinegar as a preventative of plague. And this I likewise prescribe, mixed with water, for our villagers and country labourers; and warmed with aromatics for the inhabitants of cities. Alzarius a Cruce has given the best directions for its employment.

XI. Under the head of diet it must also be mentioned, that something ought always to be taken to strengthen the stomach and fortify it against the malignity of the atmosphere, every time a person goes abroad. The weakly may take a piece of bread soaked in good wine. They who are inclined to fatness may take a mouthful of bread with some theriacal vinegar. Some, after Galen, approve garlic for the country people. As to the physician, nothing is more certain, than that he ought to employ them all, in such manner

as to take the theriaca, wine, &c. according to the exigency of circumstances. In short, the great precept of all is, *to avoid going abroad with an empty stomach.* For hunger, or as Hippocrates has it, *all extenuation relaxes the skin*; and the vessels after sleep, by reason of the greater perspiration, are necessarily more open both within and without. Hence it follows that they are more predisposed to imbibe the noxious matter which floats in the atmosphere. Therefore breakfast ought to be taken before even the windows are opened. And to crown the whole of this part of the subject, it must be remarked as a precept, which I know to be confirmed by long experience in regions of infected air, that the extremes of eating too much and of eating too little are equally to be avoided.

XII. Fourthly, in avoiding the camp fevers excited by mischievous exhalations of marshes, the quantity and quality of the drink, and the manner of taking it, are of great moment to the inhabitants. For, as to the quality, wine is better than water, especially if it is a year old, clear, austere and brisk. It is most agreeable to the stomach, has a cordial operation and is destructive to worms. If it is diluted with water to suit the particular constitution, the latter ought not to be brought from impure places; for then it is impure itself and is replete with vermin. The quantity of drink taken, is much smaller among the inhabitants of marshes, than those at a distance. Because the air which overspreads lakes and pools, contains much more watery matter than that which is open, free and ventilated. On this account, I have entertained an opinion, that men are more incommoded by large draughts, where the atmosphere is loaded with water, and the body is imbibing from it a portion of incompressible fluid. As to the manner of taking drinks, those which are neither hot nor warm, but actually cold, and stiffened by snow during the summer, are excellent preventatives for those who inhabit marshes and low coasts. Rhazes, Janniti, Ficinus, Manard, Massini, Castelli, and Castro, and many others, recommend drinks cooled by ice and snow, for that purpose. Castelli pertinently enough observes: *La Neve non puo ricevere contagio,* snow cannot receive contagion; Plempius relates, *that since it had become fashionable to refrigerate wine with snow in Sicily, pestilence had been less frequent than formerly.* This he observes is confirmed by a remark of Balthazar P. Sanelli, *that it was found by careful observation in the city of Messina, that the deaths were lessened one thousand annually, since the use of snow was introduced.* Lewis Nonnius, confirms the same

practice by the examples of the Spaniards, who, he says, are the less likely to fall into malignant fevers, on account of the coolness of their snowy drink, *by reason of which their most learned physicians, Vallesius and Mercatus, recommend to their fellow-citizens the use of snowy drink as both pleasant and useful.* But there is no need of travelling far for illustrations, since daily experience teaches, in foul, scarcely habitable regions, and along the shore of the Tyrrhene sea, the inhabitants have no more certain prophylactic against their epidemic fevers, than the use of snow. When I formerly investigated the cause of this, I could assign none better, than that snow and ice, by the contact and mixture of their rigid-nitrous particles, reduce the constitutent parts of the liquors swallowed, and of the air which accompanies them, to the same degree and temperature with the air and particles of drink in the winter time, in those very regions of bad atmosphere, which during the prevalence of the cold, are in no wise injurious to man.

XIII. The nitrous salts, also, with which snow abounds, cannot only invert and fix those particles of air, whence camp fevers proceed; but what is of more consequence, they narrow and constringe the pores, as well as the inlets of the gullet, windpipe and stomach. From this it happens, that unwholesome particles swallowed with the food, drink and air, and ready to pass suddenly into the blood, vitals and brain, are not permitted to enter at all, or at most in a much smaller quantity. We read in Galen, of certain persons labouring under a debility of the stomach, happily cured in this manner by water refrigerated with snow. The stomach is sometimes tormented with urinous salts and igneous particles; against these, there is no better remedy than cold drink, which cures by reducing the heat of the fluids, and by bracing the fibres of the solids. The use of snow is further serviceable, as it retards and restrains the hatching of the minute eggs, in the same way, that winter is unfavourable to the propagation of worms.

XIV. The fifth precaution, is to avoid the night and early morning air; it has been elsewhere shown, that the noxious exhalations in the surrounding atmosphere were more abundant, as the rays of the sun departed, by which they had before been repelled; becoming thereby, more heavy and copious, they descend after the setting and before the rising of the sun, and enter into our bodies. They therefore, who are obliged to travel on public business ought to rub their nostrils, foreheads and ears, with camphorated spirits mixed with vinegar of roses, to chew tobacco and rub the teeth with

it, and to provoke spitting by smoking it; for they all guard against contagion, by preventing the head and the lower bowels from being invaded through the medium of the mouth. Hannibal has left a famous example to posterity; when this great general dwelt in marshes, not indeed during the summer, but the spring season, *he lost an eye in consequence of noctural moisture and the marshy atmosphere attacking his head, when he was so circumstanced, as neither to have time nor place to employ remedies*, as the historian Livy relates. In this section, it ought to be remarked, that severe exercise is to be avoided, because thereby, the air is more freely applied to the pores and vessels. Thus, when gymnastic feats, hunting or field labour are vigorously performed, the fluids and solids are thereby more violently agitated, and so many substances thrown off, that when the blood and spirits subside, they leave the pores, flesh and vessels in a flaccid state. By this means, the ambient air enters more freely and plentifully, both by the lungs and skin, whereby a larger proportion of the malignant effluvia are conveyed to the brain and vitals. On this point, let us hearken to the great Hippocrates, who when he is about to prescribe a mode of prevention to those that are in fear of popular distempers, from a bad constitution of the air, observes, *care ought to be taken, that as little air as possible should enter the body, and that little should be as remote as can be from the reach of mischief.* The same author mentions also a fact worthy of citation in this place; *in a certain constitution of air women were not affected by coughs, as men were, because they were not exposed abroad as men were.*

XV. The sixth expedient for warding off the septic quality of the atmosphere, is of great importance, although it is but of a negative nature. This is a careful avoidance of swallowing the spittle, especially when living in an infected atmosphere. The miasmata of the air are mingled in a considerable degree with the saliva, and entangled with it; they find their way to the viscera, both by the gullet and the windpipe. The best way therefore is, to do as nature prompts us, by rejecting the spittle constantly, except while we are eating. Not only the smell of disgusting, fœtid and noxious things is disagreeable to us, but the same is true of the very sight of them; and whether we see or smell them, we feel an involuntary propensity to spit. Dobizenski has given a valuable observation on this subject in his little book, entitled "an universal natural preservative against all manner of contagion lurking in the air." He reduced the matter now under consideration, to an experiment, wherein he says *the*

impulse of nature was eminently serviceable to him, since with no other preservative means than the simple caution of not swallowing the spittle, but always discharging it from his mouth during the time he remained within the sphere of contagious action. By attending to this particular, though he took no other precaution, he was fortunately preserved from all contagion.

XVI. What we recommend in the seventh place, has an analogy to the preceding precaution, though the reason of its employment is different. A person exposed to marshy air ought always to carry a sponge wetted with an acid volatile liquid; such as theriacal vinegar mixed with spirit of wine. This fills the cavities of the nostrils and of the trachea with a mild vapour, and gives them tone; by this too, the poison in the air which sometimes insinuates itself, although not taken down with the saliva, is partly intercepted and partly corrected. And I take this opportunity to remark that they are very much mistaken who employ odoriferous and pungent balsams only, in these cases, without any commixture of acids; for volatile spirits and pure balsams so relax and open the passages, and the texture of the inner membrane of the nostrils and lungs, that they rather prepare the way for admitting and retaining the aëreal poison, than for repelling it and keeping it out.

XVII. Eighthly, in regard to medicines, I exhort those who dwell near marshes to employ now and then mild, and not strong or violent cathartics, through the course of autumn, winter and spring, and the whole month of May. They require such remedies, because the foul air, being naturally gross, inclines the abdominal viscera, especially the spleen and liver, to be plethoric with distending humours; hence it happens, that those cathartics are useful which loosen and reduce the belly while they relieve and invigorate the bowels; such as the pilulæ Ruffi, and those recommended by Paulus, and more especially by Avicenna, where he treats of preservation from the plague. They take aloes, myrrh and saffron; some add ammoniac; and administer about half a drachm for a dose frequently in the course of a month; some employ the great antidotes theriaca, mithridate, the diascordium of Fracastorius, and the like. Others again use the antipestilential vinegar prepared from the roots of gentian, scorzonera, iris, lesser centaury, tormentil, contrayerva, angelica and pimpernel, orange peel and leaves, laurel and juniper berries, cinnamon, cloves, flowers of rue and St. John's wort, each as much as you please; these they infuse for eight days in a sufficient quan-

tity of boiling vinegar, and afterwards strain it for use; this to be taken in smelling bottles, in soup, or diluted in water the amount of a table spoonful or two, very early in the morning. But as Celsus has observed, care must be taken the remedies against disease be not expended or exhausted in the time of health; and as to the Peruvian bark, I do not advise the employment of it for preventing these camp fevers; and utterly reject the use of it in their cure.

XVIII. Serenity of mind is the ninth requisite in the prophylactic plan. Fear and grief weaken the animal spirits and diminish the energy of the brain. The præcordia and hypochondria are drawn into sympathetic languor with them. Therefore the dejected are subject to sighing, poorness of appetite, and weakness of pulse; all which fully demonstrate, that in this malady, the solid as well as fluid parts have a tendency to dissolution. These facts show that the diminished power of the heart is less able to propel the blood through the vessels of those who are sad and timid. Then, by reason of the collapsed condition of the muscular fibres of the skin, the fluids run back more easily to the heart, and bring with them a portion of the atmospheric miasmata from the extreme parts of the body. On the other hand, a firm and steady mind, like hope during adversity, excites the brain and invigorates the heart, thereby producing a lively excitement congenial to nature. Whence the nervous fluid becomes more equable in its circulation, and passes more agreeably and readily through its passages to the præcordia. By this means the blood is enabled, by its resistance and volatility, to keep away a great part of the noxious exhalations that are seeking a passage with the air into the bowels. I do not, however, recommend cheerfulness as an antidote to pestilential distempers upon theoretical considerations alone; but I do so upon the solid basis of experience, and request my readers to note it accordingly. Rivinus and others have related that during the prevalence of plague, fear wrought greater mischief than the true contagion itself; on which account he solemnly declares, that during the plague at Leipsick, in 1680, *he did not know a single instance of sickness occurring from the plague, which did not originate in terror.* And yet this observer saw numberless cases of the disease in Leipsick. The subject may be illustrated by the experience of my late colleagues John Maria Constance and Luke Tomasino, during the pestilence which almost depopulated Rome in 1655. Those physicians personally attended the sick in the plague-hospital, and frankly owned to me, that their escape from that violent contagion was owing to their

firm and cheerful state of mind, enabling them to disregard death, and administer friendly reproof to the fearful. All those who were timid, were carried off by the distemper.

XIX. I shall, nevertheless, not dispute with Van Helmont on the example he has given of the importance of keeping up the spirits, as the greatest of all safeguards against the plague. With the strong understanding which he possessed, he published also amulets, or charms, known among the heathen under the form of idols, and by impostors inscribed with ridiculous characters; but with this intention, only that by being suspended from the neck they might inspire the strongest confidence, although such confidence might be erroneously placed. By aid of this preservative, (called Zenexton, by Paracelsus,) a great deal of mischief is avoided by those who wear them. This deception of empirics, although it deceives the multitude, is not therefore to be wholly condemned, since credulous persons derive from this deception a degree of resolution, which they never would have acquired by their own feeble powers.

XX. But the whole scope of the preventive method, may be briefly comprehended in the words of Celsus, who in his enumeration of what ought to be observed during a pestilence, says, *that fatigue, crudity, cold, heat and lust ought to be avoided. Early rising in the morning and walking barefooted are improper, especially after taking food. All these things ought to be attended to in every pestilence; but particularly in that which is brought on by southerly winds.* To this latter class the noxious exhalations of marshes are to be ascribed.

XXI. But while we do all we can by human means, religious sentiments ought to be cherished in preference to every thing else. Inhabitants of marshes ought, therefore, to imprint them on their hearts. All evils, and especially pestilence, are sent by God to purge away the sins of the people, as we read every where in the sacred volume. It is our duty, consequently, to expiate our crimes by good works, and by constant prayers to the Most High, to avert pestilence from us. For, in vain shall we put the other precautions in practice, and idle will be all their efficacy, when the Lord shall not benignantly and mercifully incline to pity us.

As to the modes of treatment and cure, they will be given at large in the ensuing book.

END OF THE SECOND PART OF THE FIRST BOOK.

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THE NINETEENTH VOLUME,

OR THE

FOURTH OF THE NEW SERIES.

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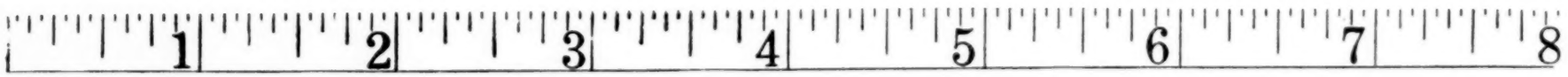

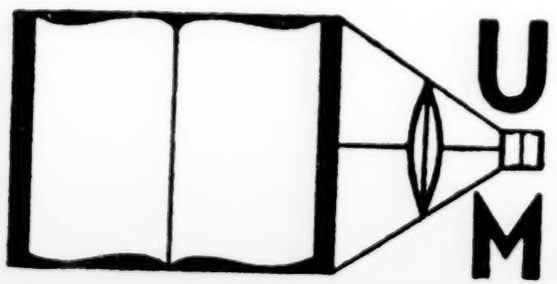

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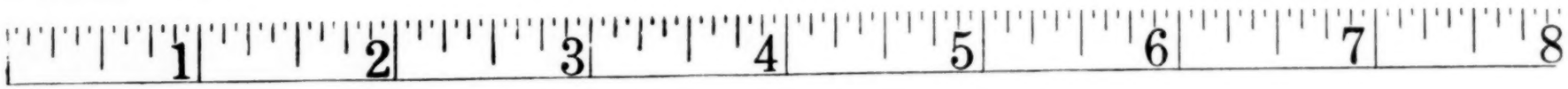

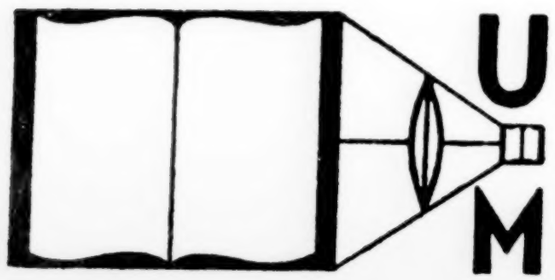

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